TABLES OF ASCENDANTS

ON

NIRAYANA BASIS

FOR

All latitudes from 0° to 60° North
(As well as for Southern latitudes)

With the method of construction of the tables
and the different houses according to
the various systems of division

(Ninth Edition)

BY

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PREFACE TO THE FIRST EDITION

In presenting to the public another volume containing tables of ascendants and of some of the houses, when there are already others in the market, I feel it my duty to apologize to my readers. As all the published tables are on the *sayana* basis, the students of the *nirayana* system of astrology were really in need of a *nirayana* equivalent of those tables, and the present endeavour is only to meet this demand.

The astrologers of Indian school are generally concerned with only the ascendant and the tenth house. In order to facilitate their work, exhaustive tables of ascendants at short intervals of latitude have been given. For critical students tables have been appended for finding the other houses according to the widely prevalent semi-arc system, and methods have been given for finding the different houses according to other systems also.

Attempts have been made to explain the mehods of construction of the tables by furnishing formulas and other necessary data, although that is not exactly the function of the compiler of such a table.

It is regretted that as the latitude and longitude of foreign cities could not be verified from any later publication until the main body of the work had been printed, some erroneous figures of latitude got printed in the book. These have however, been duly entered in the errata list. In many cases the co-ordinates of foreign cities as given in the relevant table relate to those of observatories situated in those cities. In case of Indian cities the elements have been taken from the Survey of India Map and as such they may be considered as fairly accurate.

The present high cost of production has prevented me from fixing a lower price as contemplated at the time of undertaking the work.

ASTRO-RESEARCH BUREAU
CALCUTTA
September 30, 1947

N. C. LAHIRI

PREFACE TO THE SECOND EDITION

This edition is simply a reprint of the book in its original form. The misprints of the first edition have been corrected as far as could be detected.

CALCUTTA — N. C. LAHIRI
The 5th July 1955

PREFACE TO THE THIRD EDITION

The present edition is only a reprint of the book.

CALCUTTA — N. C. LAHIRI
5th May 1963

PREFACE TO THE FOURTH EDITION

In this edition two new tables have been added facilitating study of the variation of the ascendant for latitudes higher than 60°, and of the duration of the same for certain cities in India. The tables of principal cities, both Indian and foreign, have also been expanded.

CALCUTTA — N. C. LAHIRI
June 3, 1969

PREFACE TO THE FIFTH EDITION

This edition is a reprint of the previous one with corrections of misprints and minor errors. The tables of principal cities have been thoroughly revised and expanded.

CALCUTTA-700 009 — N. C. LAHIRI
April 15, 1975
724075

PREFACE TO THE SIXTH EDITION

The present edition is only a reprint of the book.

CALCUTTA-700 009 — N. C. LAHIRI
December 4, 1979
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PREFACE TO THE SEVENTH EDITION

The present edition is a reprint of the book giving uptodate information of Summer Time.

CALCUTTA-700 009 — A. K. LAHIRI
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June 2000 1614020

A CAUTION

The readers are cautioned that the local mean time of the place should invariably be used in finding the sidereal time of the moment from which the ascendant, the tenth house and other houses are determined. Any short of standard time or ... l apparent time should not be used for this purpose.

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"	"	7° 0'	"	14
"	"	8° 0'	"	15
"	"	9° 0'	"	16
"	"	10° 0'	"	17
"	"	11° 0'	"	18
"	"	12° 0'	"	19
"	"	13° 0'	"	20
"	Madras	13° 4'	"	21
"	lat.	14° 0'	"	22
"	"	15° 0'	"	23
"	"	16° 0'	"	24
"	"	17° 0'	"	25
"	"	17°30'	"	26
"	"	18° 0'	"	27
"	Pune	18°31'	"	28
"	Bombay	19° 0'	"	29
"	lat.	19°30'	"	30
"	"	20° 0'	"	31
"	"	20°30'	"	32
"	"	21° 0'	"	33
"	"	21°30'	"	34
"	"	22° 0'	"	35
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"	lat.	32° 0'	"	53
"	"	33° 0'	"	54
"	"	34° 0'	"	55
"	"	35° 0'	"	56
"	"	36° 0'	"	57
"	"	37° 0'	"	58
"	"	38° 0'	"	59
"	"	39° 0'	"	60
"	"	40° 0'	"	61
"	"	41° 0'	"	62
"	"	42° 0'	"	63
"	"	43° 0'	"	64
"	"	44° 0'	"	65
"	"	45° 0'	"	66
"	"	46° 0'	"	67
"	"	47° 0'	"	68
"	"	48° 0'	"	69
"	"	49° 0'	"	70
"	"	50° 0'	"	71
"	"	51° 0'	"	72
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"	lat.	52° 0'	"	74
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CHANGES IN THE TIMINGS IN INDIA

Originally each city of India used to maintain the local mean time of her own, while the Panchangs used to indicate the local apparent time for many years. Any such recorded local mean time of the city can easily be converted into the Indian Standard Time of present day usage when the longitude of the place is known.

Standard time = Local time –4 (E. Long.—82° 30') mins. of time
or = Local time +4 (82° 30'—E. Long.) mins. of time

Afterwards the old Railway time, the same as the local time of Madras (5h21m ahead of G.M.T.) began to come into usage. Many small cities, particularly outside Bengal, gradually adopted this time for civil purposes also. This old Railway time can be converted into the present I.S.T. by the *addition* of 9 mins. only.

From 1906 A.D. the present I.S.T. which is 5*h* 30*m* ahead of Greenwich mean time was adopted for the Railway and Postal organisations. Cities using old Railway time adopted this Standard time from that date. But Calcutta and many places in Bengal and some places of the adjacent provinces including some big cities of other states continued to maintain the local time instead of the standard time up to the end of September, 1941. After that date there were changes of varying nature in the timings of different places as stated below.

From 1st September, 1942 to 14th October, 1945, the Indian Standard time was advanced all over India including modern Bangladesh and Pakistan by *one hour* for war purposes of daylight saving during the war period and was made equivalent of Bengal time which was thus 6*h* 30*m* ahead of G.M.T. Any recorded time of this period should therefore be reduced by 1 hour to obtain I.S.T. From 1st Sept. 1947, Indian Standard Time was introduced all over India. Other changes of timings during the war period and afterwards are noted below :—

			Reduction to I.S.T.
In Calcutta ...	before 1st Oct., 1941	... Calcutta time	—0h 23m
In whole of Bengal from	1-10-41 to 14-5-42	... Bengal time	—1h 0m
" " "	15-5-42 to 31-8-42	... I.S.T.	0h 0m
" " "	1-9-42 to 31-8-47	... Bengal time	—1h 0m
In West Bengal since 1st September, 1947		... I.S.T.	0h 0m
Assam from 1-11-41 to 14-5-42 and again from 1-9-42 to 14-10-45 and Bihar from 1-12-41 to14-5-42 and again from 1-9-42 to 14-10-45 observed Bengal time (otherwise I.S.T.)		... ...	—1h 0m

East Pakistan observed Bengal time for civil purposes and Pakistan standard time, same as I.S.T., for Railway and Postal work, etc., upto 30-9-51. From 1st Oct., 1951 East Pakistan (now Bangladesh) standard time is 30m more than I.S.T. and West Pakistan (now Pakistan) standard time is 30m less than I.S.T.

USE OF THE TABLES ILLUSTRATED

Example 1—Required to find the Ascendant and the Tenth house at Calcutta for 3-55 P.M. (Bengal time) on the 12th June, 1947.

The time is equivalent to 2-55 p.m. I.S.T. which converted by the local time correction for Calcutta, viz, +23*m* 30s (vide table at the end of the book) gives the local time of the moment as 3h 18m 30s P.M. The latitude of Calcutta is 22° 35' North.

Now it is required to find the sidereal time for this moment. From tables on page 2 *et seq.*—

Sid. Time for June 12	=	5 *h*	20 *m*	31 *s*
Correction for 1947	(–)		1	31
∴ S.T. for June 12, 1947 (noon)	=	5	19	00
Correction for Calcutta	(–)		0	04
∴ S.T. same date Calcutta noon	=	5	18	56

This sidereal time could have also been obtained from the *'Indian Ephemeris'* for 1947, or from such other yearly publications. The result in that case might not have differed by more than 1 or 2 secs. which is negligible for all practical purposes.

The given local time of the epoch is 3*h* 18*m* 30*s* after the noon. This time interval having been increased by the correction given in Table IV (page 5) *viz.* by 33*s*, we get 3*h* 19*m* 3*s*.

S.T. for Calcutta noon	=	5 *h*	18 *m*	56 *s*
Corrected time-interval	= (+)	3	19	03
∴ Sid. time for the epoch	=	8 *h*	37 *m*	59 *s*

With this sidereal time we have to enter the table of Ascendants for the place *viz.*, Calcutta as given on page 36. Against 8h 36m, we get the ascendant as 6s 12° 37'. Variation in 4 mins. as obtained from two successive values is 54' (i.e. 13°31'*minus* 12°37'). Hence from the proportional tables at the bottom of the pages 36 and 37, we get the variation for 1 min. as 13', and hence for 59 secs. as 13' approximately. So the total variation for 1m 59s is 26' approx. (By actual calculation the proportionate variation for 1m 59*s* obtained as 26'.8, but the above approximate value of 26' will serve all practical purposes).

For S.T. 8*h* 36*m*, the Ascendant	=	6*s*	12°	37'
Variation for 1*m* 59*s*	=			26
Hence for S.T. 8*h* 37*m* 59s, Ascendant	=	6	13	03
Now from page 6, the *Ayanamsa* correction for 1947 is		(–)	0	08
Hence the required Ascendant	=	6*s*	12°	55'

i.e. the Ascendant is 12° 55' of the *nirayana* sign *Tula* (6s represents the sign *Tula*).

If the tropical or *sayana* longitude of the Ascendant is required, we have to add 23° to the value 6s 13° 3' before application of Ayanamsa correction and get 7s 6° 3', *i.e.* tropical *Scorpio* 6° 3'.

Similarly from the Table of the tenth house (M.C.) as given on page 8 or 80, we get—

For S.T. 8*h* 36*m*, the M.C.	=	(–)	3*s*	13° 37'
Here Variation for 4 min. is 58'				+ 29
hence prop. Var. for 1m 59s			3*s*	14° 6'
Ayanamsa Correction		(–)		0 8
			3*s*	13° 58'

So the *Nirayana* Tenth House or M.C. is 13°58' of the sign *Karkata.*

Example 2—Find the Ascendant at a place on latitude 16°43' N; longitude 74°14' E. Time is 4-00 A.M. I.S.T. on 13th April, 1908.

From the longitude of the place we find the correction to the I.S.T. to obtain the local mean time (L.M.T.) as

4 x 74°14' – 82°30') *mins.* = 4 x (–8°16') *mins.* of time = – 33*m* 4*s*.

Hence L.M.T. of the moment is 4*h* 0*m*(–)33*m*4*s*=3*h* 26*m* 56*s* A.M.

From the above correction we also find the correction to the sidereal time for the place as +6 *secs.*, which is at the rate of 1 *sec.* per 6 *mins.* of the above local time correction (with the sign reversed).

Had the recorded time been the L.M.T. of the place, the above correction would not at all have been necessary and we could have proceeded with the time 4–0 A.M. in ascertaining the sidereal time of the moment.

Let us now find the sidereal time for the epoch.

S.T. on April 13, noon	=		1*h* 23*m*	57*s*
Correction for 1908	=		(+) 0	14
			1*h* 24*m*	11*s*
Corr. for the place (as obtained above)				(+) 6
∴ S.T. same date noon of the place	=		1*h* 24*m*	17*s*

The L.M.T. is 3*h* 20*m* 56*s* A.M., which is 8*h* 33*m* 4*s* *before* the noon of that date. This time interval increased by 10 *secs.* per hour (Table IV, page 5) becomes 8*h* 33*m* 4*s*+1*m* 25*s*=8*h* 34*m* 29*s*.

S.T. at noon	=		1*h* 24*m*	17*s*
Corrected time interval (before noon)	=	(–)8	34	29
∴ Sid. time for the epoch	=	16*h*	49*m*	48*s*

We have now to find the Ascendant with this sidereal time. As the latitude of the place is 16°43' N, we shall have to make use of the table for lat. 17° 0' N (page 25) which is nearest to the latitude of the place.

For S.T. 16*h* 48*m*, the Ascendant	=		10*s*	14° 38'
Prop. variation for 1*m* 48*s*				+33
∴ For S.T.16*h* 49*m* 48*s*, the Ascendant	=		10	15 11
Ayanamsa correction for 1908	=	(+)		0 25
		10*s*		15° 36

Hence the Ascendant is *Kumbha* 15°36'

d.

In the above calculations we have made use of the table for latitude *17° 0'* N. although the latitude of the place is somewhat different *viz.* 16° 43' N, which is less by 17' than 17° 0' N. If extreme accuracy is desired, which is not required in ordinary cases, we shall have to make necessary corrections for this difference of latitude. The given latitude falls between 16°0' N and 17° 0' N and for our sidereal time *16h 48m* the ascendant is diminishing by 12' per degree of latitude as may be seen from the two tables (*viz.* 14°50'—14°38'). For a difference in latitude of 17', the above correction is obtained as 3' only. This is to be added to the Ascendant as the result for 16°0' lat. is greater than that for 17°0' lat. Hence the finally adjusted value of Ascendant is *Kumbha* 15°39'.

Example 3—Find the ascendant at Capetown on Feb.1, 1940, 10-00 p.m. local or zonal standard time.

The latitude of place is 33°56' South, and longitude is 18°29' E. The correction to zonal standard time is —*46m 04s* (*vide* table of Foreign Cities at the end of the book). Hence the L.M.T. = 9-13-56 p.m. This is *9h 13m 56s* after the noon. This time interval increased by 10 secs. per hour (Table IV, page 5) becomes *9h 15m 27s*.

Sidereal time on Feb.1	=	*20h*	*44m* 2*s*
Correction for 1940	=	(–)	2 43
		20	41 19
Corr. for the place (Tables of Foreign cities)		(+)	0 42
∴ S.T. for noon of the place	=	20	42 01
Increased time interval (after noon)	=	(+)9	15 27
∴ Sid. time for the epoch	=	*5h*	*57m* *28s*

As the place falls in the Southern hemisphere, the following method is to be applied in this case.

Adding 12 hours to the S.T. we get *17h 57m 28s*. The latitude being 33°56' S, we have to use the table for 34°0' N (page 55).

For S.T. *17h 56m*, the Ascendant	=	*11s*	5° 28'
Prop. variation for *1m 28s*	=		+ 34
		11	6 2
Ayanamsa correction for 1940	=	(–)	0 2
		11	6 0

Now adding ±6 *signs* to the result, we get the Ascendant as 5s 6°0' i.e. *Kanya* 6°0'.

TABLES OF ASCENDANTS

ON

NIRAYANA BASIS

The Tables of the Ascendants (*Lagna*) and that of the Tenth House (M.C. or *Dasama*) as given in this book are on the *nirayana* or sidereal basis. The *ayanamsa* adopted for this purpose, which is according to the *Citra-paksa*, was zero on the vernal equinox day of 285 A.D. The tables furnished cover all places on the earth from 0° to 60° North latitude (geographic or common latitude), but these can be used for the southern hemisphere also from 0° to 60° South latitude, the direction for which has been given on page 7.

The tables are to be entered into with the sidereal time for the moment. It should always be borne in mind that *in finding the sidereal time, the local mean time of the moment and for the place should be made use of.* When the event is recorded in some sort of standard time (viz. I.S.T., Bengal time, G.M.T., etc.), it should invariably be converted into the local time of the place before calculating the corresponding sidereal time.

The tables have been constructed adopting 23° 0' as the constant value of *ayanamsa*. Necessary corrections for the gradual yearly variation of the ayanamsa (correction for precession) which have been given separately for different years, should be applied to the degree of the ascendant and the tenth house as obtained from the tables.

If the sayana or tropical longitude of the ascendant and the tenth house are required, 23°0' only should be added to the longitudes as obtained from the tables without at all applying the above mentioned correction for procession.

The longitudes of the ascendants etc. have been expressed in signs(s) degrees(°) and minutes('). When the number under 'sign' is 0, it is *Mesa* or Aries. Similarly, 1=*Vrsa* (Taurus), 2=*Mithuna* (Gemini), etc. The numbers of signs (*rasi*) and their symbols are given below :

0	*Mesa*	Aries	4	*Simha*	Leo	8	*Dhanus*	Sagittarius
1	*Vrsa*	Taurus	5	*Kanya*	Virgo	9	*Makara*	Capricorn
2	*Mithuna*	Gemini	6	*Tula*	Libra	10	*Kumbha*	Aquarius
3	*Karkata*	Cancer	7	*Vrscika*	Scorpio	11	*Mina*	Pisces

SIDEREAL TIME

Table I

Sidereal Time at 12*h* noon local mean time for days of year.

(For 82½° E. Longitude and for 1900 A.D.)

Date	Sid. time	Date	Sid. time	Date	Sid. time	Date	Sid. time	Date	Sid. time
	JAN.		FEB.		APRIL		MAY		JULY
	h m s		*h m s*		*h m s*		*h m s*		*h m s*
1	18 41 48	16	21 43 10	1	0 36 39	17	3 38 0	1	6 35 25
2	18 45 45	17	21 47 7	2	0 40 35	18	3 41 56	2	6 39 22
3	18 49 42	18	21 51 3	3	0 44 32	19	3 45 53	3	6 43 18
4	18 53 38	19	21 55 0	4	0 48 28	20	3 49 50	4	6 47 15
5	18 57 35	20	21 58 56	5	0 52 25	21	3 53 46	5	6 51 11
6	19 1 31	21	22 2 53	6	0 56 21	22	3 57 43	6	6 55 8
7	19 5 28	22	22 6 49	7	1 0 18	23	4 1 39	7	6 59 4
8	19 9 24	23	22 10 46	8	1 4 14	24	4 5 36	8	7 3 1
9	19 13 21	24	22 14 43	9	1 8 11	25	4 9 33	9	7 6 58
10	19 17 18	25	22 18 39	10	1 12 8	26	4 13 29	10	7 10 54
11	19 21 14	26	22 22 36	11	1 16 4	27	4 17 26	11	7 14 51
12	19 25 11	27	22 26 32	12	1 20 1	28	4 21 22	12	7 18 47
13	19 29 7	28	22 30 29	13	1 23 57	29	4 25 19	13	7 22 44
14	19 33 4	29	22 34 25	14	1 27 54	20	4 29 15	14	7 26 40
15	19 37 0			15	1 31 50	31	4 33 12	15	7 30 37
16	19 40 57		MAR.	16	1 35 47		JUNE	16	7 34 33
17	19 44 53			17	1 39 43			17	7 38 30
18	19 48 50			18	1 43 40			18	7 42 27
19	19 52 47	1	22 34 25	19	1 47 37			19	7 46 23
20	19 56 43	2	22 38 22	20	1 51 33	1	4 37 8	20	7 50 20
21	20 0 40	3	22 42 18	21	1 55 30	2	4 41 5	21	7 54 16
22	20 4 36	4	22 46 15	22	1 59 26	3	4 45 2	22	7 58 13
23	20 8 33	5	22 50 12	23	2 3 23	4	4 48 58	23	8 2 9
24	20 12 29	6	22 54 8	24	2 7 19	5	4 52 55	24	8 6 6
25	20 16 26	7	22 58 5	25	2 11 16	6	4 56 51	25	8 10 2
26	20 20 22	8	23 2 1	26	2 15 12	7	5 0 48	26	8 13 59
27	20 24 19	9	23 5 58	27	2 19 9	8	5 4 44	27	8 17 56
28	20 28 16	10	23 9 54	28	2 23 6	9	5 8 41	28	8 21 52
29	20 32 12	11	23 13 51	29	2 27 2	10	5 12 37	29	8 25 49
30	20 36 9	12	23 17 47	30	2 30 59	11	5 16 34	30	8 29 45
31	20 40 5	13	23 21 44		MAY	12	5 20 31	31	8 33 42
	FEB.	14	23 25 41			13	5 24 27		AUG.
		15	23 29 37			14	5 28 24		
		16	23 33 34	1	2 34 55	15	5 32 20		
1	20 44 2	17	23 37 30	2	2 38 52	16	5 36 17	1	8 37 38
2	20 47 58	18	23 41 27	3	2 42 48	17	5 40 13	2	8 41 35
3	20 51 55	19	23 45 23	4	2 46 45	18	5 44 10	3	8 45 31
4	20 55 51	20	23 49 20	5	2 50 41	19	5 48 6	4	8 49 28
5	20 59 48	21	23 53 16	6	2 54 38	20	5 52 3	5	8 53 25
6	21 3 45	22	23 57 13	7	2 58 35	21	5 56 0	6	8 57 21
7	21 7 41	23	0 1 10	8	3 2 31	22	5 59 56	7	9 1 18
8	21 11 38	24	0 5 6	9	3 6 28	23	6 3 53	8	9 5 14
9	21 15 34	25	0 9 3	10	3 10 24	24	6 7 49	9	9 9 11
10	21 19 31	26	0 12 59	11	3 14 21	25	6 11 46	10	9 13 7
11	21 23 27	27	0 16 56	12	3 18 17	26	6 15 42	11	9 17 4
12	21 27 24	28	0 20 52	13	3 22 14	27	6 19 39	12	9 21 0
13	21 31 20	29	0 24 49	14	3 26 10	28	6 23 35	13	9 24 57
14	21 35 17	30	0 28 45	15	3 30 7	29	6 27 32	14	9 28 54
15	21 39 14	31	0 32 42	16	3 34 4	30	6 31 29	15	9 32 50

Sidereal Time : Table I—*contd.*

Date	Sid. time	Date	Sid. time	Date	Sid. time	Date	Sid. time	Date	Sid. time
	AUGUST		SEPT.		OCT..		NOV.		DEC.
	h m s		*h m s*		*h m s*		*h m s*		*h m s*
16	9 36 47	12	11 23 14	9	13 9 41	5	14 56 8	2	16 42 35
17	9 40 43	13	11 27 10	10	13 13 37	6	15 0 4	3	16 46 31
18	9 44 40	14	11 31 7	11	13 17 34	7	15 4 1	4	16 50 28
19	9 48 36	15	11 35 3	12	13 21 30	8	15 7 57	5	16 54 24
20	9 52 33	16	11 39 0	13	13 25 27	9	15 11 54	6	16 58 21
21	9 56 29	17	11 42 56	14	13 29 23	10	15 15 50	7	17 2 17
22	10 0 26	18	11 46 53	15	13 33 20	11	15 19 47	8	17 6 14
23	10 4 23	19	11 50 50	16	13 37 16	12	15 23 43	9	17 10 10
24	10 8 19	20	11 54 46	17	13 41 13	13	15 27 40	10	17 14 7
25	10 12 16	21	11 58 43	18	13 45 10	14	15 31 37	11	17 18 4
26	10 16 12	22	12 2 39	19	13 49 6	15	15 35 33	12	17 22 0
27	10 20 9	23	12 6 36	20	13 53 3	16	15 39 30	13	17 25 57
28	10 24 5	24	12 10 32	21	13 56 59	17	15 43 26	14	17 29 53
29	10 28 2	25	12 14 29	22	14 0 56	18	15 47 23	15	17 33 50
30	10 31 58	26	12 18 25	23	14 4 52	19	15 51 19	16	17 37 46
31	10 35 55	27	12 22 22	24	14 8 49	20	15 55 16	17	17 41 43
	SEPT.	28	12 26 19	25	14 12 45	21	15 59 12	18	17 45 39
		29	12 30 15	26	14 16 42	22	16 3 9	19	17 49 36
		30	12 34 12	27	14 20 39	23	16 7 6	20	17 53 33
1	10 39 52		OCT.	28	14 24 35	24	16 11 2	21	17 57 29
2	10 43 48			29	14 28 32	25	16 14 59	22	18 1 26
3	10 47 45			30	14 32 28	26	16 18 55	23	18 5 22
4	10 51 41	1	12 38 8	31	14 36 25	27	16 22 52	24	18 9 19
5	10 55 38	2	12 42 5		NOV.	28	16 26 48	25	18 13 15
6	10 59 34	3	12 46 1			29	16 30 45	26	18 17 12
7	11 3 31	4	12 49 58			30	16 34 41	27	18 21 8
8	11 7 27	5	12 53 54	1	14 40 21		DEC.	28	18 25 5
9	11 11 24	6	12 57 51	2	14 44 18			29	18 29 2
10	11 15 21	7	13 1 48	3	14 48 14			30	18 32 58
11	11 19 17	8	13 5 44	4	14 52 11	1	16 38 38	31	18 36 55

Table II – Correction for different years

(To be applied to the result of Table I above)

Year	Correction	Year	Correction	Year	Correction	Year	Correction	Year	Correction
	m s		*m s*		*m s*		*m s*		*m s*
1800	+0 52	1810	–0 47	1820*	–2 27	1829	+0 47	1839	–0 53
1801	–0 5	1811	–1 45	1820†	+1 29	1830	–0 10	1840*	–1 50
1802	–1 2	1812*	–2 42	1821	+0 32	1831	–1 8	1840†	+2 6
1803	–1 59	1812†	+1 14	1822	–0 25	1832*	–2 5	1841	+1 9
1804*	–2 57	1813	+0 17	1823	–1 23	1832†	+1 51	1842	+0 12
1804†	+1 0	1814	–0 40	1824*	–2 20	1833	+0 54	1843	–0 46
1805	+0 3	1815	–1 37	1824†	+1 36	1834	–0 3	1844*	–1 43
1806	–0 55	1816*	–2 35	1825	+0 39	1835	–1 0	1844†	+2 13
1807	–1 52	1816†	+1 22	1826	–0 18	1836*	–1 58	1845	+1 16
1808*	–2 49	1817	+0 25	1827	–1 15	1836†	+1 59	1846	+0 19
1808†	+1 7	1818	–0 33	1828*	–2 12	1837	+1 2	1847	–0 38
1809	+0 10	1819	–1 30	1828†	+1 44	1838	+0 4	1848*	–1 36

* For January & February only.
† For March to December

Sidereal Time : Table II—*contd.*

Year	Correction	Year	Correction	Year	Correction	Year	Correction	Year	Correction	Year	Correction
	m *s*		*m* *s*		*m* *s*		*m* *s*		*m* *s*		*m* *s*
1848 †	+ 2 21	1882	+ 1 25	1916†	− 0 29	1950	− 0 26	1984 *	− 1 21	2018	+ 1 41
1849	+ 1 24	1883	+ 0 28	1917	− 0 28	1951	− 1 24	1984 †	+ 2 36	2019	+ 0 43
1850	+ 0 26	1884*	− 0 29	1918	− 1 25	1952 *	− 2 21	1985	+ 1 38	2020 *	− 0 14
1851	− 0 31	1884 †	+ 3 27	1919	− 2 23	1952 †	+ 1 36	1986	+ 0 41	2020 †	+ 3 42
1852*	− 1 28	1885	+ 2 30	1920*	− 3 20	1953	+ 0 38	1987	− 0 16	2021	+ 2 45
1852 †	+ 2 28	1886	+ 1 33	1920†	+ 0 37	1954	− 0 19	1988 *	− 1 13	2022	+ 1 48
1853	+ 1 31	1887	+ 0 36	1921	− 0 21	1955	− 1 16	1988 †	+ 2 43	2023	+ 0 50
1854	+ 0 34	1888*	− 0 22	1922	− 1 18	1956 *	− 2 13	1989	+ 1 46	2024 *	− 0 7
1855	− 0 24	1888 †	+ 3 35	1923	− 2 15	1956 †	+ 1 43	1990	+ 0 48	2024 †	+ 3 50
1856*	− 1 21	1889	+ 2 38	1924*	− 3 12	1957	+ 0 46	1991	− 0 9	2025	+ 2 53
1856 †	+ 2 36	1890	+ 1 40	1924 †	+ 0 44	1958	− 0 12	1992 *	− 1 6	2026	+ 1 56
1857	+ 1 38	1891	+ 0 43	1925	− 0 13	1959	− 1 9	1992 †	+ 2 21	2027	+ 0 58
1858	+ 0 41	1892*	− 0 14	1926	− 1 11	1960 *	− 2 6	1993	+ 1 53	2028 *	0 0
1859	− 0 16	1892*	+ 3 42	1927	− 2 8	1960 †	+ 1 52	1994	+ 0 56	2028 †	+ 3 57
1860*	− 1 13	1893	+ 2 45	1928*	− 3 5	1961	+ 0 54	1995	− 0 2	2029	+ 3 0
1860 †	+ 2 43	1894	+ 1 48	1928 †	+ 0 51	1962	− 0 3	1996 *	− 1 59	2230	+ 2 3
1861	+ 1 46	1895	+ 0 50	1929	− 0 6	1963	− 1 1	1996 †	+ 2 58	2031	+ 1 5
1862	+ 0 49	1896*	− 0 7	1930	− 1 3	1964 *	− 1 58	1997	+ 2 0	2032 *	+ 0 8
1863	− 0 9	1896 †	+ 3 49	1931	− 2 1	1964 †	+ 1 59	1998	+ 1 3	2032 †	+ 4 5
1864*	− 1 6	1897	+ 2 52	1932*	− 2 58	1965	+ 0 59	1999	+ 0 6	2033	+ 3 8
1864†	+ 2 50	1898	+ 1 55	1932 †	+ 0 59	1966	+ 0 2	2000 *	− 0 51	2034	+ 2 11
1865	+ 1 53	1899	+ 0 57	1933	+ 0 1	1967	− 0 53	2000 †	+ 3 6	2035	+ 1 13
1866	+ 0 56	1900	0 0	1934	− 0 56	1968 *	− 1 50	2001	+ 2 8	2036 *	+ 0 16
1867	− 0 1	1901	− 0 57	1935	− 1 53	1968 †	+ 2 6	2002	+ 1 11	2036 †	+ 4 12
1868*	− 0 59	1902	− 1 55	1936*	− 2 50	1969	+ 1 9	2003	+ 0 14	2037	+ 3 15
1968 †	+ 2 58	1903	− 2 52	1936 †	+ 1 6	1970	+ 0 11	2004 *	− 0 44	2038	+ 2 18
1869	+ 2 1	1904*	− 3 49	1937	+ 0 9	1971	− 0 46	2004 †	− 3 13	2039	+ 1 20
1870	+ 1 3	1904†	+ 0 7	1938	− 0 49	1972 *	− 1 43	2005	+ 2 16	2040 *	+ 0 23
1871	+ 0 6	1905	− 0 50	1939	− 1 46	1972 †	+ 2 14	2006	+ 1 19	2040 †	+ 4 19
1872*	− 0 51	1906	− 1 48	1940*	− 2 43	1973	+ 1 16	2007	+ 0 12	2041	+ 3 22
1872†	+ 3 5	1907	− 2 45	1940 †	+ 1 13	1974	+ 0 19	2008 *	− 0 36	2042	+ 2 25
1873	+ 2 8	1908*	− 3 42	1941	+ 0 16	1975	− 0 38	2008 †	+ 3 20	2043	+ 1 27
1874	+ 1 11	1908†	+ 0 14	1942	− 0 41	1976 *	− 1 35	2009	+ 2 23	2044 *	+ 0 30
1875	+ 0 13	1909	− 0 43	1943	− 1 38	1976 †	+ 2 21	2010	+ 1 26	2044 †	+ 4 27
1876*	− 0 44	1910	− 1 40	1944*	− 2 36	1977	+ 1 24	2011	+ 0 29	2045	+ 3 30
1876 †	+ 3 12	1911	− 2 38	1944 †	+ 1 21	1978	+ 0 26	2012 *	− 0 29	2046	+ 2 33
1877	+ 2 15	1912*	− 3 35	1945	+ 0 24	1979	− 0 31	2012 †	+ 3 28	2047	+ 1 35
1878	+ 1 18	1912†	+ 0 22	1946	− 0 34	1980 *	− 1 28	2013	+ 2 31	2048 *	+ 0 38
1879	+ 0 21	1913	− 0 36	1947	− 1 31	1980 †	+ 2 29	2014	+ 1 34	2048 †	+ 4 34
1880*	− 0 37	1914	− 1 33	1948 *	− 2 28	1981	+ 1 31	2015	+ 0 36	2049	+ 3 37
1880†	+ 3 20	1915	− 2 30	1948 †	+ 1 28	1982	+ 0 34	2016 *	− 0 21	2050	+ 2 40
1881	+ 2 23	1916*	− 3 27	1949	+ 0 31	1983	− 0 24	2016 †	+ 3 35	2051	+ 1 42
								2017	+ 2 38		

* For January and February only. † For March to December.

Table II (a)—Correction for other Centuries.

If the sidereal time for a date before 1800 A. D. is required, the following further correction is to be applied to the result obtained from the above tables.

Year for which Sid. time is required	Year to which cor. to be applied	Correction	Year for which Sid. time is required	Year to which cor. to be applied	Correction
		m *s*			*m* *s*
1001—1100 (O.S.)	1901—2000	+ 23 42	1501—1582 (O.S.)	1901—1982	+ 38 59
1101—1200 "	1901—2000	+ 26 45	1582—1600 (N.S.)	1982—2000	− 0 27
1201—1300 "	1901—2000	+ 29 48	1601—1699 "	1901—1999	+ 2 37
1301—1400 "	1901—2000	+ 32 51	1700—1799 "	1900—1999	+ 1 44
1401—1500 "	1901—2000	+ 35 55	2001—2099 "	1901—1999	+ 0 52

Sidereal Time

Table III — Correction for different localities

To the result obtained from the above tables, the following correction for the longitude of the locality is to be applied. These are at the rate of 0.66 secs. per degree of longitude from the central meridian of India (viz. $82^1/_2$°E) and positive for west and negative for east. For places in India these corrections are so small as can safely be ignored for ordinary calculations. A detailed table for important places giving latitudes and longitudes along with these corrections will be found at the end of the book. Corrections for a few places are however given below.

Place	Long.	Correction	Place	Long.	Correction
	°	*m* *s*		° '	*m* *s*
Allahabad ...	81 52 E	+ 0 0	Greenwich ...	0 0	+ 0 54
Bangalore ...	77 36 "	+ 0 2	Islamabad ...	73 10 E	+ 0 6
Bangkok ...	100 30 "	− 0 12	Kuala Lumpur ...	101 43 "	− 0 13
Bombay ...	72 50 "	+ 0 6	Madras ...	80 15 "	+ 0 1
Calcutta ...	88 23 "	− 0 4	New York ...	74 0 W	+ 1 43
Colombo ...	79 52 "	+ 0 2	Pune ...	73 53 E	+ 0 6
Dhaka ...	90 25 "	− 0 5	Rangoon ...	96 10 "	− 0 9
Delhi ...	77 13 E	+ 0 3	Varanasi ...	83 1 E	− 0 0

Table IV — Correction for hours and minutes

The result thus obtained is the sidereal time for 12*h* noon local mean time of the place. The time interval of the given moment from the above noon, *increased by the following correction,* is then to be applied to the above sidereal time for the given moment. When the moment is after the noon, the increased time interval is to be *added* to and when it is before noon it is to be *subtracted* from the sidereal time for the noon. If the total thus obtained exceeds 24 hours, then *24h* should be subtracted from it, and where necessary *24h* may also be added to facilitate subraction.

CORRECTION TO INCREASE THE TIME INTERVAL

Time	Corr.	Time	Corr.	Time	Corr.	Time	Corr.	Time	Corr.
h	*m* *s*	*h*	*m* *s*	*h*	*m* *s*	*m*	*m* *s*	*m*	*m* *s*
1	+ 0 10	8	+ 1 19	15	+ 2 28	22	+ 3 37	24	+ 0 4
2	0 20	9	1 29	16	2 38	23	3 47	30	0 5
3	0 30	10	1 39	17	2 48	24	+ 3 57	36	0 6
4	0 39	11	1 48	18	2 57	*m*	*m* *s*	42	0 7
5	0 49	12	1 58	19	3 7	6	+ 0 1	48	0 8
6	0 59	13	2 8	20	3 17	12	0 2	54	0 9
7	+ 1 9	14	+ 2 18	21	+ 3 27	18	+ 0 3	60	+ 0 10

EXAMPLE :— Required sidereal time at 6-13 a.m. (L.M.T.), given that the sidereal time at noon on that date and place is 22*h* 32*m* 53*s*. The given local time is 5*h* 47*m* before noon. From the above Table IV, the correction to this time interval is 0*m* 57*s*. Hence the increased time interval is 5*h* 47*m* 57*s*. This subtracted from the given sidereal time for noon, we get 16*h* 44*m* 56*s* as the required sidereal time for the moment.

AYANAMSA CORRECTION

(Correction for precession *i.e.* for yearly variation of *ayanamsa*)

After obtaining from the tables the exact value of the Ascendant or the Tenth house (in degrees and mins.) for the given time and place, the following correction for the year in question should be applied to the result.

Year	Correction	Year	Correction	Year	Correction	Year	Correction	Year	Correction
A.D.	° '	A.D.	° '	A.D.	° '	A.D.	° '	A.D.	° '
1000	+ 13 4	1821	+ 1 38	1877	+ 0 51	1933	+ 0 4	1989	− 0 43
1100	11 41	1822	1 37	1878	0 50	1934	0 3	1990	0 44
1200	10 17	1823	1 36	1879	0 49	1935	0 3	1991	0 44
1300	8 54	1824	1 35	1880	0 49	1936	0 2	1992	0 45
1350	8 12	1825	1 35	1881	0 48	1937	+ 0 1	1993	0 46
1400	7 30	1826	1 34	1882	0 47	1938	0 0	1994	0 47
1420	7 13	1827	1 33	1883	0 46	1939	− 0 1	1995	0 48
1440	6 57	1828	1 32	1884	0 45	1940	0 2	1996	0 49
1460	6 40	1829	1 31	1885	0 44	1941	0 2	1997	0 49
1480	6 23	1830	1 30	1886	0 44	1942	0 3	1998	0 50
1500	6 7	1831	1 30	1887	0 43	1943	0 4	1999	0 51
1520	5 50	1832	1 29	1888	0 42	1944	0 5	2000	0 52
1540	5 33	1833	1 28	1889	0 41	1945	0 6	2001	0 53
1560	5 16	1834	1 27	1890	0 40	1946	0 7	2002	0 54
1580	5 0	1835	1 26	1891	0 39	1947	0 8	2003	0 55
1600	4 43	1836	1 25	1892	0 39	1948	0 8	2004	0 55
1610	+ 4 35	1837	+ 1 25	1893	+ 0 38	1949	− 0 9	2005	− 0 56
1620	4 26	1838	1 24	1894	0 37	1950	0 10	2006	0 57
1630	4 18	1839	1 23	1895	0 36	1951	0 11	2007	0 58
1640	4 9	1840	1 22	1896	0 35	1952	0 12	2008	0 59
1650	4 1	1841	1 21	1897	0 34	1953	0 13	2009	1 00
1660	3 53	1842	1 20	1898	0 33	1954	0 13	2010	1 1
1670	3 44	1843	1 20	1899	0 33	1955	0 14	2011	1 1
1680	3 36	1844	1 19	1900	0 32	1956	0 15	2012	1 2
1690	3 28	1845	1 18	1901	0 31	1957	0 16	2013	1 3
1700	3 19	1846	1 17	1902	0 30	1958	0 17	2014	1 4
1710	3 11	1847	1 16	1903	0 29	1959	0 18	2015	1 5
1720	3 3	1848	1 15	1904	0 29	1960	0 18	2016	1 6
1730	2 54	1849	1 15	1905	0 28	1961	0 19	2017	1 6
1740	2 46	1850	1 14	1906	0 27	1962	0 20	2018	1 7
1750	2 37	1851	1 13	1907	0 26	1963	0 21	2019	1 8
1760	2 29	1852	1 12	1908	0 25	1964	0 22	2020	1 9
1770	2 21	1853	1 11	1909	0 24	1965	0 23	2021	1 10
1780	2 12	1854	1 10	1910	0 23	1966	0 23	2022	1 11
1790	2 4	1855	1 10	1911	0 23	1967	0 24	2023	1 11
1800	1 56	1856	1 9	1912	0 22	1968	0 25	2024	1 12
1801	+ 1 55	1857	+ 1 8	1913	+ 0 21	1969	− 0 26	2025	− 1 13
1802	1 54	1858	1 7	1914	0 20	1970	0 27	2026	1 14
1803	1 53	1859	1 6	1915	0 19	1971	0 28	2027	1 15
1804	1 52	1860	1 5	1916	0 18	1972	0 28	2028	1 15
1805	1 51	1861	1 5	1917	0 18	1973	0 29	2029	1 16
1806	1 51	1862	1 4	1918	0 17	1974	0 30	2030	1 17
1807	1 50	1863	1 3	1919	0 16	1975	0 31	2031	1 18
1808	1 49	1864	1 2	1920	0 15	1976	0 32	2032	1 19
1809	1 48	1865	1 1	1921	0 14	1977	0 33	2033	1 19
1810	1 47	1866	1 0	1922	0 13	1978	0 33	2034	1 20
1811	1 46	1867	0 59	1923	0 13	1979	0 34	2035	1 21
1812	1 46	1868	0 59	1924	0 12	1980	0 35	2036	1 22
1813	1 45	1869	0 58	1925	0 11	1981	0 36	2037	1 23
1814	1 44	1870	0 57	1926	0 10	1982	0 37	2038	1 23
1815	1 43	1871	0 56	1927	0 9	1983	0 38	2039	1 24
1816	1 42	1872	0 55	1928	0 8	1984	0 39	2040	1 25
1817	1 41	1873	0 54	1929	0 8	1985	0 39	2041	1 26
1818	1 41	1874	0 54	1930	0 7	1986	0 40	2042	1 27
1819	1 40	1875	0 53	1931	0 6	1987	0 41	2043	1 28
1820	+ 1 39	1876	+ 0 52	1932	+ 0 5	1988	− 0 42	2044	− 1 28

AYANAMSA CORRECTION — *contd.*

Year	Correction	Year	Correction	Year	Correction	Year	Correction	Year	Correction
A.D.	° '	A.D.	° '	A.D.	° '	A.D.	° '	A.D.	° '
2045	- 1 29	2057	- 1 39	2069	- 1 50	2081	- 2 00	2093	- 2 10
2046	1 30	2058	1 40	2070	1 51	2082	2 1	2094	2 11
2047	1 31	2059	1 41	2071	1 51	2083	2 2	2095	2 12
2048	1 32	2060	1 42	2072	1 52	2084	2 2	2096	2 13
2049	1 33	2061	1 43	2073	1 53	2085	2 3	2097	2 13
2050	1 34	2062	1 44	2074	1 54	2086	2 4	2098	2 14
2051	1 34	2063	1 45	2075	1 55	2087	2 5	2099	2 15
2052	1 35	2064	1 45	2076	1 56	2088	2 6	2100	- 2 16
2053	1 36	2065	1 46	2077	1 56	2089	2 7		
2054	1 37	2066	1 47	2078	1 57	2090	2 8		
2055	1 38	2067	1 48	2079	1 58	2091	2 8		
2056	- 1 39	2068	- 1 49	2080	- 1 59	2092	- 2 9		

N.B. — The corrections are for the middle of the year.

Note : In the construction of foregoing table the *ayanamsa* adopted as the basis is as stated below for different years. These are according to the *Citra-paksa* and are given for the beginning of the year.

Year	Ayanamsa	Year	Ayanamsa	Year	Ayanamsa	Year	Ayanamsa	Year	Ayanamsa
A.D.	° '	A.D.	° '	A.D.	° '	A.D.	° '	A.D.	° '
1000	9 55	1560	17 43	1720	19 57	1880	22 11	2040	24 25
1100	11 19	1580	18 0	1740	20 14	1900	22 28	2060	24 42
1200	12 42	1600	18 17	1760	20 31	1920	22 44	2080	24 59
1300	14 6	1620	18 33	1780	20 47	1940	23 1	2100	25 15
1400	15 29	1640	18 50	1800	21 4	1960	23 18	2200	26 39
1500	16 53	1660	19 7	1820	21 21	1980	23 35	2300	28 3
1520	17 10	1680	19 24	1840	21 37	2000	23 52	2400	29 27
1540	17 26	1700	19 40	1860	21 54	2020	24 8	2500	30 51

Directions for using the tables for Southern Latitudes

Although the Tables of Ascendants as given in this book relate to places in the northern hemisphere only, they may be used also for obtaining the ascendant for places in the southern hemisphere by special contrivance. The table for a particular degree of northern latitude may be used to find the ascendant for a place having the same degree of southern latitude by the following rule.

Rule :— As usual first find the sidereal time for the given hour of the day. **Add to it ± 12 hours.** Then with this sidereal time find the Ascendant from the table, and as usual apply to it the *Ayanamsa* correction. **Now add to it ± 6 signs** (i.e. 180 degrees), and the result will be the required ascendant for the given place and time.

The Tenth House may also be obtained by the above rule. Or it may be obtained by using the ordinary sidereal time in the usual way (*i.e.* without adding ±12*h* and ±6 signs) as the results obtained in both the cases are the same as far as the tenth house is concerned.

N. B. Addition of ±12*h* means that 12*h* may either be added or subtracted as is convenient, the result in both the cases being the same. Similar is the case in the addition of ±6 *signs* also. It should be borne in mind that both 24*h* and 12 *signs* complete the circle, and hence 24*h* and 12 *signs* should be deducted from the corresponding figures whenever they exceed the circle.

Note

The Tables of ascendants are given only for some particular degrees of latitude. Use the Table which is given for the latitude nearest to that of the given place. When a higher degree of precision is desired, use two tables, one above and the other below the latitude of the place and then ascertain the exact degree of the ascendant by simple interpolation from the result of the two tables.

Table of the TENTH HOUSE

(For all places on the Earth)

Minute	SIDEREAL TIME																	
	0h			3h			6h			9h			12h			15h			18h			21h		
	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'
0	11	7	0	0	24	28	2	7	0	3	19	32	5	7	0	6	24	28	8	7	0	9	19	32
4		8	5		25	28		7	55		20	32		8	5		25	28		7	55		20	32
8		9	11		26	27		8	50		21	32		9	11		26	27		8	50		21	32
12		10	16		27	27		9	45		22	32		10	16		27	27		9	45		22	33
16		11	22		28	26		10	40		23	33		11	22		28	26		10	40		23	33
20		12	27	0	29	25		11	35		24	33		12	27	6	29	25		11	35		24	33
24		13	32	1	0	23		12	30		25	34		13	32	7	0	23		12	30		25	34
28		14	37		1	22		13	26		26	35		14	37		1	22		13	26		26	35
32	11	15	43	1	2	21	2	14	21	3	27	36	5	15	43	7	2	21	8	14	21	9	27	36
36		16	48		3	19		15	16		28	37		16	48		3	19		15	16		28	37
40		17	53		4	17		16	11	3	29	39		17	53		4	17		16	11	9	29	39
44		18	58		5	15		17	7	4	0	41		18	58		5	15		17	7	10	0	41
48		20	3		6	13		18	2		1	42		20	3		6	13		18	2		1	42
52		21	8		7	11		18	58		2	44		21	8		7	11		18	58		2	44
56		22	12		8	8		19	53		3	47		22	12		8	8		19	53		3	47
	1h			4h			7h			10h			13h			16h			19h			22h		
0	11	23	17	1	9	5	2	20	49	4	4	49	5	23	17	7	9	5	8	20	49	10	4	49
		24	21		10	3		21	44		5	52		24	21		10	3		21	44		5	52
8		25	26		11	0		22	40		6	54		25	26		11	0		22	40		6	54
12		26	30		11	57		23	36		7	57		26	30		11	57		23	36		7	57
16		27	34		12	54		24	32		9	0		27	34		12	54		24	32		9	0
20		28	38		13	50		25	28		10	3		28	38		13	50		25	28		10	3
24	11	29	42		14	47		26	24		11	7	5	29	42		14	47		26	24		11	7
28	0	0	46		15	43		27	20		12	10	6	0	46		15	43		27	20		12	10
32	0	1	50	1	16	40	2	28	17	4	13	14	6	1	50	7	16	40	8	28	17	10	13	14
36		2	53		17	36	2	29	13		14	18		2	53		17	36	8	29	13		14	18
40		3	57		18	32	3	0	10		15	22		3	57		18	32	9	0	10		15	22
44		5	0		19	28		1	6		16	26		5	0		19	28		1	6		16	26
48		6	3		20	24		2	3		17	30		6	3		20	24		2	3		17	30
52		7	6		21	20		3	0		18	34		7	6		21	20		3	0		18	34
56		8	8		22	16		3	57		19	39		8	8		22	16		3	57		19	39
	2h			5h			8h			11h			14h			17h			20h			23h		
0	0	9	11	1	23	11	3	4	55	4	20	43	6	9	11	7	23	11	9	4	55	10	20	43
4		10	13		24	7		5	52		21	48		10	13		24	7		5	52		21	48
8		11	16		25	2		6	49		22	52		11	16		25	2		6	49		22	52
12		12	18		25	58		7	47		23	57		12	18		25	58		7	47		23	57
16		13	19		26	53		8	45		25	2		13	19		26	53		8	45		25	2
20		14	21		27	49		9	43		26	7		14	21		27	49		9	43		26	7
24		15	23		28	44		10	41		27	12		15	23		28	44		10	41		27	12
28		16	24	1	29	39		11	39		28	17		16	24	7	29	39		11	39		28	17
32	0	17	25	2	0	34	3	12	38	4	29	23	6	17	25	8	0	34	9	12	38	10	29	23
36		18	26		1	30		13	37	5	0	28		18	26		1	30		13	37	11	0	28
40		19	27		2	25		14	35		1	33		19	27		2	25		14	35		1	33
44		20	27		3	20		15	34		2	38		20	27		3	20		15	34		2	38
48		21	28		4	15		16	33		3	44		21	28		4	15		16	33		3	44
52		22	28		5	10		17	33		4	49		22	28		5	10		17	33		4	49
56		23	28		6	5		18	32		5	55		23	28		6	5		18	32		5	55
60	0	24	28	2	7	0	3	19	32	5	7	0	6	24	28	8	7	0	9	19	32	11	7	0

Proportional Parts

Variation in 4 mins. :	1°—5'	1°—3'	1°—1'	0°—59'	0°—57'	0°—55'
Variation in 3 mins.	49'	47'	46'	44'	43'	41'
" " 2 mins.	32	31	31	30	29	28
" " 1 min.	16	16	15	15	14	14

Ascendant for Latitude 0° 0'

(For all places on the Earth's equator)

Minute	SIDEREAL TIME																	
	0h			3h			6h			9h			12h			15h			18h			21h		
	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'
0	2	7	0	3	19	32	5	7	0	6	24	28	8	7	0	9	19	32	11	7	0	0	24	28
4		7	55		20	32		8	5		25	28		7	55		20	32		8	5		25	28
8		8	50		21	32		9	11		26	27		8	50		21	32		9	11		26	27
12		9	45		22	32		10	16		27	27		9	45		22	32		10	16		27	27
16		10	40		23	33		11	22		28	26		10	40		23	33		11	22		28	26
20		11	35		24	33		12	27	6	29	25		11	35		24	33		12	27	0	29	25
24		12	30		25	34		13	32	7	0	23		12	30		25	34		13	32	1	0	23
28		13	26		26	35		14	37		1	22		13	26		26	35		14	37		1	22
32	2	14	21	3	27	36	5	15	43	7	2	21	8	14	21	9	27	36	11	15	43	1	2	21
36		15	16		28	37		16	48		3	19		15	16		28	37		16	48		3	19
40		16	11	3	29	39		17	53		4	17		16	11	9	29	39		17	53		4	17
44		17	7	4	0	41		18	58		5	15		17	7	10	0	41		18	58		5	15
48		18	2		1	42		20	3		6	13		18	2		1	42		20	3		6	13
52		18	58		2	44		21	8		7	11		18	58		2	44		21	8		7	11
56		19	53		3	47		22	12		8	8		19	53		3	47		22	12		8	8
	1h			4h			7h			10h			13h			16h			19h			22h		
0	2	20	49	4	4	49	5	23	17	7	9	5	8	20	49	10	4	49	11	23	17	1	9	5
4		21	44		5	52		24	21		10	3		21	44		5	52		24	21		10	3
8		22	40		6	54		25	26		11	0		22	40		6	54		25	26		11	0
12		23	36		7	57		26	30		11	57		23	36		7	57		26	30		11	57
16		24	32		9	0		27	34		12	54		24	32		9	0		27	34		12	54
20		25	28		10	3		28	38		13	50		25	28		10	3		28	38		13	50
24		26	24		11	7	5	29	42		14	47		26	24		11	7	11	29	42		14	47
28		27	20		12	10	6	0	46		15	43		27	20		12	10	0	0	46		15	43
32	2	28	17	4	13	14	6	1	50	7	16	40	8	28	17	10	13	14	0	1	50	1	16	40
36	2	29	13		14	18		2	53		17	36	8	29	13		14	18		2	53		17	36
40	3	0	10		15	22		3	57		18	32	9	0	10		15	22		3	57		18	32
44		1	6		16	26		5	0		19	28		1	6		16	26		5	0		19	28
48		2	3		17	30		6	3		20	24		2	3		17	30		6	3		20	24
52		3	0		18	34		7	6		21	20		3	0		18	34		7	6		21	20
56		3	57		19	39		8	8		22	16		3	57		19	39		8	8		22	16
	2h			5h			8h			11h			14h			17h			20h			23h		
0	3	4	55	4	20	43	6	9	11	7	23	11	9	4	55	10	20	43	0	9	11	1	23	11
4		5	52		21	48		10	13		24	7		5	52		21	48		10	13		24	7
8		6	49		22	52		11	16		25	2		6	49		22	52		11	16		25	2
12		7	47		23	57		12	18		25	58		7	47		23	57		12	18		25	58
16		8	45		25	2		13	19		26	53		8	45		25	2		13	19		26	53
20		9	43		26	7		14	21		27	49		9	43		26	7		14	21		27	49
24		10	41		27	12		15	23		28	44		10	41		27	12		15	23		28	44
28		11	39		28	17		16	24	7	29	39		11	39		28	17		16	24	1	29	39
32	3	12	38	4	29	23	6	17	25	8	0	34	9	12	38	10	29	23	0	17	25	2	0	34
36		13	37	5	0	28		18	26		1	30		13	37	11	0	28		18	26		1	30
40		14	35		1	33		19	27		2	25		14	35		1	33		19	27		2	25
44		15	34		2	38		20	27		3	20		15	34		2	38		20	27		3	20
48		16	33		3	44		21	28		4	15		16	33		3	44		21	28		4	15
52		17	33		4	49		22	28		5	10		17	33		4	49		22	28		5	10
56		18	32		5	55		23	28		6	5		18	32		5	55		23	28		6	5
60	3	19	32	5	7	0	6	24	28	8	7	0	9	19	32	11	7	0	0	24	28	2	7	0

Proportional Parts

Variation in 4 mins. :	0°—55'	0°—57'	0°—59'	1°—1'	1°—3'	1°—5'
Variation in 3 mins.	41'	43'	44'	46'	47'	49'
" " 2 mins.	28	29	30	31	32	33
" " 1 min.	14	14	15	15	16	16

Ascendant for Latitude 2° 0' North

(For Singapore 1°N21' etc.)

Minute	SIDEREAL TIME																							
	0h			3h			6h			9h			12h			15h			18h			21h		
	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'
0	2	7	48	3	20	8	5	7	0	6	23	52	8	6	12	9	18	55	11	7	0	0	25	5
4		8	43		21	8		8	4		24	51		7	7		19	55		8	6		26	5
8		9	38		22	7		9	9		25	50		8	2		20	56		9	13		27	5
12		10	33		23	7		10	13		26	49		8	57		21	57		10	19		28	5
16		11	28		24	7		11	18		27	47		9	52		22	58		11	26	0	29	5
20		12	23		25	7		12	22		28	46		10	48		23	59		12	32	1	0	4
24		13	18		26	7		13	26	6	29	44		11	43		25	0		13	38		1	3
28		14	13		27	7		14	31	7	0	42		12	38		26	2		14	44		2	3
32	2	15	8	3	28	8	5	15	35	7	1	40	8	13	33	9	27	4	11	15	51	1	3	1
36		16	3	3	29	8		16	39		2	38		14	29		28	6		16	57		4	0
40		16	58	4	0	9		17	43		3	36		15	24	9	29	8		18	3		4	59
44		17	54		1	10		18	47		4	34		16	19	10	0	10		19	9		5	57
48		18	49		2	11		19	51		5	31		17	15		1	13		20	15		6	55
52		19	44		3	13		20	55		6	28		18	10		2	15		21	20		7	53
56		20	40		4	14		21	59		7	26		19	6		3	18		22	26		8	51
	1h			4h			7h			10h			13h			16h			19h			22h		
0	2	21	35	4	5	16	5	23	3	7	8	23	8	20	2	10	4	22	11	23	32	1	9	49
4		22	31		6	17		24	6		9	20		20	58		5	25		24	37		10	46
8		23	26		7	20		25	10		10	16		21	54		6	28		25	42		11	44
12		24	20		8	22		26	13		11	13		22	50		7	32		26	48		12	41
16		25	18		9	24		27	16		12	10		23	46		8	36		27	53		13	38
20		26	13		10	26		28	20		13	6		24	42		9	40	11	28	58		14	35
24		27	9		11	29	5	29	23		14	2		25	38		10	44	0	0	2		15	32
28		28	5		12	31	6	0	26		14	58		26	35		11	48		1	7		17	29
32	2	29	1	4	13	34	6	1	29	7	15	55	8	27	31	10	12	53	0	2	12	1	17	25
36	2	29	58		14	37		2	31		16	51		28	28		13	58		3	16		18	22
40	3	0	54		15	40		3	33		17	47	8	29	25		15	2		4	20		19	18
44		1	50		16	44		4	36		18	42	9	0	22		16	7		5	24		20	14
48		2	47		17	47		5	38		19	38		1	19		17	12		6	28		21	10
52		3	44		18	50		6	40		20	34		2	16		18	18		7	32		22	6
56		4	40		19	54		7	42		21	29		3	14		19	23		8	35		23	2
	2h			5h			8h			11h			14h			17h			20h			23h		
0	3	5	37	4	20	57	6	8	44	7	22	25	9	4	11	10	20	28	0	9	38	1	23	58
4		6	34		22	1		9	46		23	20		5	9		21	34		10	42		24	54
8		7	32		23	5		10	47		24	16		6	7		22	40		11	45		25	50
12		8	29		24	9		11	49		25	11		7	5		23	45		12	47		26	45
16		9	26		25	13		12	50		26	6		8	3		24	51		13	50		27	41
20		10	24		26	17		13	51		27	2		9	1		25	57		14	52		28	36
24		11	22		27	21		14	52		27	57		10	0		27	4		15	54	1	29	31
28		12	20		28	25		15	52		28	50		10	59		28	9		16	56	2	0	27
32	3	13	18	4	29	29	6	16	53	7	29	47	9	11	57	10	29	16	0	17	58	2	1	22
36		14	16	5	0	34		17	53	8	0	42		12	57	11	0	22		19	0		2	17
40		15	14		1	38		18	53		1	37		13	56		1	28		20	1		3	12
44		16	13		2	42		19	53		2	32		14	55		2	34		21	2		4	7
48		17	11		3	47		20	53		3	27		15	55		3	41		22	3		5	3
52		18	10		4	51		21	53		4	22		16	55		4	47		23	4		5	58
56		19	9		5	56		22	52		5	17		17	55		5	54		24	5		6	53
60	3	20	8	5	7	0	6	23	52	8	6	12	9	18	55	11	7	0	0	25	5	2	7	48

Proportional Parts

Variation in 4 mins.	0°—55'	0°—57'	0°—59'	1°—1'	1°—3'	1°—5'
Variation in 3 mins.	41'	43'	44'	46'	47'	49'
" " 2 mins.	28	29	30	31	32	33
" " 1 min.	14	14	15	15	16	16

Ascendant for Latitude 4° 0' North

(For Kuala Lumpur 3°N11', etc.)

Minute	SIDEREAL TIME																	
	0h			3h			6h			9h			12h			15h			18h			21h		
	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'
0	2	8	36	3	20	44	5	7	0	6	23	16	8	5	24	9	18	17	11	7	0	0	25	43
4		9	31		21	43		8	3		24	14		6	19		19	18		8	7		26	44
8		10	26		22	42		9	7		25	13		7	14		20	19		9	15		27	44
12		11	21		23	41		10	10		26	11		8	9		21	21		10	22		28	44
16		12	16		24	40		11	14		27	10		9	5		22	22		11	30	0	29	45
20		13	11		25	40		12	17		28	8		10	0		23	24		12	37	1	0	44
24		14	5		26	39		13	21	6	29	5		10	55		24	26		13	44		1	44
28		15	0		27	39		14	24	7	0	3		11	50		25	28		14	52		2	44
32	2	15	56	3	28	39	5	15	27	7	1	1	8	12	45	9	26	31	11	15	59	1	3	43
36		16	50	3	29	39		16	31		1	58		13	41		27	33		17	6		4	42
40		17	46	4	0	39		17	34		2	56		14	36		28	36		18	13		5	41
44		18	41		1	39		18	37		3	53		15	32	9	29	39		19	20		6	40
48		19	36		2	40		19	40		4	50		16	28	10	0	42		20	27		7	38
52		20	31		3	40		20	43		5	47		17	23		1	46		21	34		8	37
56		21	26		4	41		21	46		6	44		18	19		2	49		22	40		9	35
	1h			4h			7h			10h			13h			16h			19h			22h		
0	2	22	21	4	5	42	5	22	49	7	7	40	8	19	15	10	3	53	11	23	47	1	10	33
4		23	17		6	43		23	51		8	37		20	11		4	57		24	53		11	31
8		24	12		7	44		24	54		9	33		21	7		6	2		26	0		12	28
12		25	7		8	46		25	57		10	30		22	3		7	6		27	6		13	26
16		26	3		9	47		26	59		11	26		22	59		8	11		28	12		14	23
20		26	59		10	49		28	1		12	22		23	55		9	16	11	29	18		15	21
24		27	54		11	50	5	29	4		13	18		24	52		10	21	0	0	23		16	18
28		28	50		12	52	6	0	6		14	14		25	49		11	26		1	29		17	15
32	2	29	46	4	13	54	6	1	8	7	15	10	8	26	45	10	12	31	0	2	34	1	18	11
36	3	0	42		14	56		2	10		16	6		27	42		13	37		3	39		19	8
40		1	38		15	59		3	11		17	1		28	39		14	42		4	44		20	5
44		2	34		17	0		4	13		17	57	8	29	37		15	48		5	49		21	1
48		3	30		18	3		5	14		18	52	9	0	34		16	54		6	54		21	57
52		4	27		19	6		6	16		19	48		1	32		18	0		7	58		22	53
56		5	23		20	9		7	17		20	43		2	29		19	7		9	3		23	49
	2h			5h			8h			11h			14h			17h			20h			23h		
0	3	6	20	4	21	11	6	8	18	7	21	39	9	3	27	10	20	13	0	10	7	1	24	45
4		7	16		22	14		9	19		22	34		4	25		21	20		11	11		25	41
8		8	13		23	17		10	20		23	29		5	23		22	26		12	14		26	37
12		9	10		24	20		11	20		24	24		6	22		23	33		13	18		27	33
16		10	7		25	23		12	21		25	19		7	20		24	40		14	21		28	28
20		11	4		26	26		13	21		26	14		8	19		25	47		15	24	1	29	24
24		12	1		27	29		14	21		27	10		9	18		26	54		16	27	2	0	19
28		12	59		28	33		15	21		28	4		10	17		28	1		17	29		1	15
32	3	13	57	4	29	36	6	16	21	7	29	0	9	11	16	10	29	8	0	18	32	2	2	10
36		14	55	5	0	39		17	21	7	29	55		12	16	11	0	16		19	34		3	5
40		15	52		1	43		18	20	8	0	49		13	15		1	23		20	36		4	0
44		16	50		2	46		19	20		1	44		14	15		2	30		21	38		4	55
48		17	49		3	50		20	19		2	39		15	16		3	38		22	39		5	51
52		18	47		4	53		21	18		3	34		16	16		4	45		23	41		6	46
56		19	46		5	57		22	17		4	29		17	16		5	52		24	42		7	41
60	3	20	44	5	7	0	6	23	16	8	5	24	9	18	17	11	7	0	0	25	43	2	8	36

Proportional Parts

Variation in 4 mins.	0°—55'	0°—57'	0°—59'	1°—1'	1°—3'	1°—5'	1°—7'
Variation in 3 mins.	41'	43'	44'	46'	47'	49'	50'
" " 2 mins.	27	29	30	31	32	33	34
" " 1 min.	14	14	15	15	16	16	17

Ascendant for Latitude 5° 0' North

(For Penang 5°N25', etc.)

Minute	SIDEREAL TIME																	
	0h			3h			6h			9h			12h			15h			18h			21h		
	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'
0	2	9	0	3	21	2	5	7	0	6	22	58	8	5	0	9	17	58	11	7	0	0	26	2
4		9	55		22	0		8	3		23	57		5	55		18	59		8	8		27	3
8		10	50		22	59		9	6		24	55		6	50		20	0		9	16		28	4
12		11	44		23	58		10	9		25	53		7	45		21	2		10	24	0	29	4
16		12	39		24	57		11	12		26	51		8	41		22	4		11	32	1	0	5
20		13	34		25	56		12	15		27	49		9	36		23	6		12	40		1	5
24		14	29		26	55		13	18		28	46		10	31		24	8		13	48		2	5
28		15	24		27	54		14	21	6	29	44		11	26		25	11		14	55		3	5
32	2	16	19	3	28	54	5	15	24	7	0	41	8	12	21	9	26	14	11	16	3	1	4	4
36		17	14	3	29	54		16	26		1	38		13	17		27	17		17	11		5	3
40		18	9	4	0	54		17	29		2	36		14	12		28	20		18	18		6	3
44		19	4		1	53		18	32		3	33		15	8	9	29	23		19	26		7	1
48		19	59		2	54		19	34		4	29		16	3	10	0	27		20	33		8	0
52		20	54		3	54		20	37		5	26		16	59		1	31		21	40		8	59
56		21	49		4	54		21	39		6	23		17	55		2	35		22	48		9	57
	1h			4h			7h			10h			13h			16h			19h			22h		
0	2	22	44	4	5	55	5	22	42	7	7	19	8	18	51	10	3	39	11	23	55	1	10	55
4		23	40		6	56		23	44		8	16		19	47		4	43		25	2		11	53
8		24	35		7	56		24	46		9	12		20	43		5	48		26	8		12	51
12		25	30		8	57		25	48		10	8		21	39		6	53		27	15		13	49
16		26	26		9	58		26	50		11	4		22	36		7	58		28	21		14	46
20		27	21		11	0		27	52		12	0		23	32		9	3	11	29	28		15	43
24		28	17		12	1		28	54		12	56		24	29		10	9	0	0	34		16	41
28	2	29	12		13	2	5	29	56		13	52		25	25		11	14		1	40		17	38
32	3	0	8	4	14	4	6	0	58	7	14	48	8	26	22	10	12	20	0	2	46	1	18	35
36		1	4		15	6		1	59		15	43		27	19		13	26		3	51		19	31
40		2	0		16	8		3	0		16	39		28	17		14	32		4	57		20	28
44		2	56		17	10		4	2		17	34	8	29	14		15	39		6	2		21	24
48		3	52		18	12		5	3		18	30	9	0	11		16	45		7	7		22	21
52		4	48		19	14		6	4		19	25		1	9		17	52		8	12		23	17
56		5	44		20	16		7	4		20	20		2	7		18	58		9	17		24	13
	2h			5h			8h			11h			14h			17h			20h			23h		
0	3	6	41	4	21	18	6	8	5	7	21	16	9	3	5	10	20	5	0	10	21	1	25	9
4		7	37		22	21		9	6		22	11		4	3		21	12		11	25		26	5
8		8	34		23	23		10	6		23	6		5	1		22	20		12	29		27	1
12		9	31		24	26		11	6		24	1		6	0		23	27		13	33		27	57
16		10	27		25	28		12	7		24	56		6	59		24	34		14	37		28	52
20		11	24		26	31		13	6		25	51		7	57		25	42		15	40	1	29	48
24		12	22		27	34		14	6		26	46		8	57		26	49		16	43	2	0	43
28		13	19		28	36		15	6		27	41		9	56		27	57		17	46		1	39
32	3	14	16	4	29	39	6	16	6	7	28	36	9	10	55	10	29	5	0	18	49	2	2	34
36		15	14	5	0	42		17	5	7	29	31		11	55	11	0	12		19	52		3	29
40		16	11		1	45		18	4	8	0	26		12	55		1	20		20	54		4	24
44		17	9		2	48		19	3		1	21		13	55		2	28		21	56		5	19
48		18	7		3	51		20	2		2	16		14	56		3	36		22	58		6	15
52		19	5		4	54		21	1		3	10		15	56		4	44		24	0		7	19
56		20	3		5	57		22	0		4	5		16	57		5	52		25	1		8	5
60	3	21	2	5	7	0	6	22	58	8	5	0	9	17	58	11	7	0	0	26	2	2	9	0

Proportional Parts

Variation in 4 mins. :	0°—55'	0°—57'	0°—59'	1°—1'	1°—3'	1°—5'	1°—7'
Variation in 3 mins.	41'	43'	44'	46'	47'	49'	50'
" " 2 mins.	28	29	30	31	32	33	34
" " 1 min.	14	14	15	15	16	16	17

Ascendant for Latitude 6° 0' North

(For Galle 6°N1', etc.)

Minute	SIDEREAL TIME																	
	0h			3h			6h			9h			12h			15h			18h			21h		
	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'
0	2	9	24	3	21	19	5	7	0	6	22	41	8	4	36	9	17	38	11	7	0	0	26	22
4		10	19		22	18		8	3		23	39		5	31		18	40		8	9		27	23
8		11	14		23	16		9	5		24	37		6	26		19	41		9	17		28	24
12		12	8		24	14		10	8		25	35		7	21		20	43		10	26	0	29	25
16		13	3		25	13		11	10		26	32		8	16		21	46		11	34	1	0	25
20		13	58		26	12		12	13		27	30		9	12		22	48		12	42		1	26
24		14	53		27	11		13	15		28	27		10	7		23	51		13	51		2	26
28		15	48		28	10		14	18	6	29	25		11	2		24	53		14	59		3	26
32	2	16	43	3	29	9	5	15	20	7	0	22	8	11	57	9	25	56	11	16	7	1	4	25
36		17	38	4	0	8		16	22		1	19		12	53		27	0		17	16		5	25
40		18	33		1	8		17	24		2	16		13	48		28	3		18	24		6	24
44		19	28		2	8		18	27		3	12		14	44	9	29	7		19	32		7	23
48		20	23		3	7		19	29		4	9		15	39	10	0	11		20	40		8	22
52		21	17		4	7		20	31		5	6		16	35		1	15		21	47		9	21
56		22	12		5	7		21	33		6	2		17	31		2	20		22	55		10	19
	1h			4h			7h			10h			13h			16h			19h			22h		
0	2	23	8	4	6	8	5	22	35	7	6	58	8	18	27	10	3	24	11	24	2	1	11	18
4		24	3		7	8		23	37		7	55		19	23		4	29		25	10		12	16
8		24	58		8	8		24	39		8	51		20	19		5	34		26	17		13	14
12		25	53		9	9		25	40		9	47		21	15		6	40		27	24		14	12
16		26	48		10	10		26	42		10	43		22	12		7	45		28	31		15	9
20		27	44		11	11		27	43		11	38		23	8		8	51	11	29	38		16	7
24		28	39		12	12		28	45		12	34		24	5		9	56	0	0	45		17	4
28	2	29	35		13	13	5	29	46		13	30		25	2		11	3		1	51		18	1
32	3	0	30	4	14	14	6	0	47	7	14	25	8	25	59	10	12	9	0	2	57	1	18	58
36		1	26		15	15		1	48		15	21		26	56		13	15		4	4		19	55
40		2	22		16	17		2	49		16	16		27	53		14	22		5	9		20	52
44		3	17		17	18		3	50		17	12		28	51		15	29		6	15		21	48
48		4	13		18	20		4	51		18	7	8	29	48		16	36		7	20		22	45
52		5	9		19	21		5	52		19	2	9	0	46		17	43		8	26		23	41
56		6	5		20	23		6	52		19	57		1	44		18	50		9	31		24	37
	2h			5h			8h			11h			14h			17h			20h			23h		
0	3	7	2	4	21	25	6	7	52	7	20	52	9	2	42	10	19	58	0	10	36	1	25	33
4		7	58		22	27		8	53		21	48		3	41		21	5		11	40		26	29
8		8	54		23	29		9	53		22	42		4	39		22	13		12	45		27	25
12		9	51		24	31		10	53		23	38		5	58		23	20		13	49		28	21
16		10	48		25	33		11	52		24	32		6	37		24	28		14	53	1	29	16
20		11	44		26	36		12	52		25	27		7	36		25	36		15	57	2	0	12
24		12	41		27	38		13	52		26	22		8	35		26	44		17	0		1	7
28		13	38		28	40		14	51		27	17		9	35		27	53		18	4		2	3
32	3	14	35	4	29	43	6	15	50	7	28	12	9	10	34	10	29	1	0	19	7	2	2	58
36		15	33	5	0	45		16	49	7	29	7		11	34	11	0	9		20	9		3	53
40		16	30		1	47		17	48	8	0	2		12	34		1	18		21	12		4	48
44		17	28		2	50		18	47		0	57		13	35		2	26		22	14		5	44
48		18	25		3	52		19	46		1	52		14	35		3	34		23	17		6	39
52		19	23		4	55		20	44		2	46		15	36		4	43		24	19		7	34
56		20	21		5	57		21	42		3	41		16	37		5	51		25	20		8	29
60	3	21	19	5	7	0	6	22	41	8	4	36	9	17	38	11	7	0	0	26	22	2	9	24

Proportional Parts

Variation in 4 mins. :	0°—55'	0°—57'	0°—59'	1°—1'	1°—3'	1°—5'	1°—8'
Variation in 3 mins.	41'	43'	44'	46'	47'	49'	51'
" " 2 mins.	28	29	30	31	32	33	34
" " 1 min.	14	14	15	15	16	16	17

Ascendants for Latitude 7° 0' North

(For Colombo 6°N54', Kandy 7°N18', etc.)

Minute	SIDEREAL TIME																							
	0h			3h			6h			9h			12h			15h			18h			21h		
	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'
0	2	9	48	3	21	37	5	7	0	6	22	23	8	4	12	9	17	18	11	7	0	0	26	42
4		10	43		22	35		8	2		23	21		5	7		18	20		8	9		27	43
8		11	38		23	33		9	4		24	19		6	2		19	22		9	18		28	44
12		12	32		24	31		10	6		25	16		6	57		20	24		10	27	0	29	45
16		13	27		25	29		11	8		26	14		7	52		21	27		11	36	1	0	46
20		14	22		26	28		12	10		27	11		8	47		22	29		12	45		1	47
24		15	17		27	26		13	12		28	8		9	43		23	32		13	54		2	47
28		16	12		28	25		14	14	6	29	5		10	38		24	36		15	3		3	47
32	2	17	6	3	29	24	5	15	16	7	0	2	8	11	33	9	25	39	11	16	12	1	4	47
36		18	1	4	0	23		16	18		0	59		12	28		26	43		17	20		5	47
40		18	56		1	22		17	20		1	56		13	24		27	46		18	29		6	46
44		19	51		2	22		18	22		2	52		14	20		28	51		19	38		7	45
48		20	46		3	21		19	24		3	49		15	15	9	29	55		20	46		8	44
52		21	41		4	21		20	25		4	45		16	11	10	0	59		21	54		9	43
56		22	36		5	20		21	27		5	41		17	7		2	4		23	3		10	42
	1h			4h			7h			10h			13h			16h			19h			22h		
0	2	23	31	4	6	20	5	22	28	7	6	38	8	18	3	10	3	9	11	24	11	1	11	40
4		24	26		7	20		23	30		7	34		18	59		4	15		25	18		12	39
8		25	21		8	20		24	31		8	30		19	55		5	20		26	26		13	37
12		26	16		9	21		25	32		9	25		20	51		6	26		27	34		14	35
16		27	11		10	21		26	34		10	21		21	48		7	32		28	41		15	32
20		28	6		11	21		27	35		11	17		22	45		8	38	11	29	49		16	30
24		29	1		12	22		28	36		12	12		23	41		9	44	0	0	56		17	27
28	2	29	57		13	23	5	29	37		13	8		24	38		10	51		2	3		18	25
32	3	0	52	4	14	23	6	0	38	7	14	3	8	25	35	10	11	57	0	3	9	1	19	23
36		1	48		15	24		1	38		14	59		26	33		13	4		4	16		20	19
40		2	43		16	25		2	39		15	54		27	30		14	11		5	22		21	15
44		3	39		17	26		3	39		16	49		28	28		15	19		6	28		22	12
48		4	35		18	28		4	39		17	44	8	29	25		16	26		7	34		23	9
52		5	30		19	29		5	40		18	39	9	0	23		17	34		8	40		24	5
56		6	26		20	30		6	40		19	34		1	21		18	42		9	45		25	1
	2h			5h			8h			11h			14h			17h			20h			23h		
0	3	7	22	4	21	32	6	7	40	7	20	29	9	2	20	10	19	49	0	10	51	1	25	57
4		8	19		22	34		8	40		21	24		3	18		20	57		11	56		26	53
8		9	15		23	35		9	39		22	19		4	17		22	6		13	1		27	49
12		10	11		24	36		10	39		23	14		5	16		23	14		14	5		28	45
16		11	8		25	38		11	38		24	9		6	15		24	22		15	9	1	29	40
20		12	4		26	40		12	38		25	4		7	14		25	31		16	14	2	0	36
24		13	1		27	42		13	37		25	59		8	13		26	40		17	17		1	32
28		13	58		28	44		14	36		26	54		9	13		27	48		18	21		2	27
32	3	14	55	4	29	46	6	15	35	7	27	48	9	10	13	10	28	57	0	19	24	2	3	22
36		15	52	5	0	48		16	34		28	43		11	13	11	0	6		20	28		4	18
40		16	49		1	50		17	32	7	29	38		12	13		1	15		21	31		5	13
44		17	46		2	52		18	31	8	0	33		13	14		2	24		22	33		6	8
48		18	44		3	54		19	29		1	28		14	15		3	33		23	36		7	3
52		19	41		4	56		20	27		2	22		15	16		4	42		24	38		7	58
56		20	39		5	58		21	25		3	17		16	17		5	51		25	40		8	53
60	3	21	37	5	7	0	6	22	23	8	4	12	9	17	18	11	7	0	0	26	42	2	9	48

Proportional Parts

Variation in 4 mins. :	0°—55'	0°—57'	0°—59'	1°—1'	1°—3'	1°—5'	1°—8'
Variation in 3 mins.	41'	43'	44'	46'	47'	49'	51'
" " 2 mins.	28	29	30	31	32	33	34
" " 1 min.	14	14	15	15	16	16	17

Ascendants for Latitude 8° 0' North

(For Cape Comorin 8°N6', etc.)

Minute	SIDEREAL TIME								
	0h	3h	6h	9h	12h	15h	18h	21h	
	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	
0	2 10 12	3 21 54	5 7 0	6 22 6	8 3 48	9 16 58	11 7 0	0 27 2	
4	11 7	22 52	8 2	23 4	4 43	18 0	8 10	28 3	
8	12 2	23 50	9 3	24 1	5 38	19 3	9 19	0 29 5	
12	12 57	24 47	10 5	24 58	6 33	20 5	10 29	1 0 6	
16	13 51	25 46	11 7	25 55	7 28	21 8	11 38	1 7	
20	14 46	26 44	12 8	26 52	8 23	22 11	12 48	2 8	
24	15 41	27 42	13 10	27 49	9 18	23 14	13 58	3 8	
28	16 35	28 40	14 11	28 46	10 13	24 18	15 7	4 9	
32	2 17 30	3 29 39	5 15 13	6 29 43	8 11 9	9 25 21	11 16 16	1 5 9	
36	18 25	4 0 38	16 14	7 0 40	12 4	26 25	17 25	6 9	
40	19 20	1 37	17 16	1 36	13 0	27 29	18 35	7 8	
44	20 15	2 36	18 17	2 32	13 55	28 4	19 44	8 8	
48	21 9	3 35	19 18	3 29	14 51	9 29 39	20 53	9 7	
52	22 4	4 34	20 19	4 25	15 47	10 0 44	22 2	10 6	
56	22 59	5 33	21 21	5 21	16 43	1 49	23 10	11 5	
	1h	4h	7h	10h	13h	16h	19h	22h	
0	2 23 54	4 6 33	5 22 22	7 6 17	8 17 39	10 2 54	11 24 19	1 12 3	
4	24 49	7 32	23 23	7 13	18 35	4 0	25 27	13 2	
8	25 44	8 32	24 24	8 8	19 31	5 6	26 36	14 0	
12	26 38	9 32	25 25	9 4	20 27	6 12	27 44	14 58	
16	27 33	10 32	26 25	10 0	21 24	7 18	11 28 52	15 56	
20	28 29	11 32	27 26	10 55	22 21	8 25	0 0 0	16 54	
24	2 29 24	12 32	28 27	11 50	23 18	9 32	1 7	17 51	
28	3 0 19	13 33	5 29 27	12 46	24 15	10 39	2 14	18 48	
32	3 1 14	4 14 33	6 0 27	7 13 41	8 25 12	10 11 46	0 3 21	1 19 45	
36	2 10	15 33	1 28	14 36	26 9	12 53	4 28	20 42	
40	3 5	16 34	2 28	15 31	27 6	14 0	5 35	21 39	
44	4 0	17 35	3 28	16 27	28 4	15 8	6 42	22 36	
48	4 56	18 35	4 28	17 22	8 29 2	16 16	7 48	23 33	
52	5 52	19 36	5 28	18 16	9 0 0	17 24	8 54	24 29	
56	6 47	20 37	6 28	19 11	0 58	18 33	10 0	25 25	
	2h	5h	8h	11h	14h	17h	20h	23h	
0	3 7 43	4 21 38	6 7 27	7 20 6	9 1 57	10 19 41	0 11 6	1 26 21	
4	8 39	22 39	8 27	21 1	2 55	20 50	12 11	27 17	
8	9 35	23 41	9 26	21 56	3 54	21 58	13 16	28 13	
12	10 31	24 42	10 25	22 51	4 53	23 7	14 21	1 29 9	
16	11 28	25 43	11 24	23 46	5 52	24 16	15 26	2 0 5	
20	12 24	26 44	12 23	24 40	6 52	25 25	16 31	1 0	
24	13 20	27 46	13 22	25 35	7 51	26 34	17 35	1 56	
28	14 17	28 47	14 21	26 30	8 51	27 44	18 39	2 51	
32	3 15 14	4 29 49	6 15 20	7 27 25	9 9 51	10 28 53	0 19 42	2 3 47	
36	16 11	5 0 50	16 18	28 19	10 52	11 0 2	20 46	4 42	
40	17 8	1 52	17 16	7 29 14	11 52	1 12	21 49	5 37	
44	18 5	2 53	18 14	8 0 9	12 53	2 22	22 52	6 32	
48	19 2	3 55	19 13	1 3	13 54	3 31	23 55	7 27	
52	19 59	4 57	20 10	1 58	14 55	4 41	24 57	8 22	
56	20 56	5 58	21 8	2 53	15 57	5 50	26 0	9 17	
60	3 21 54	5 7 0	6 22 6	8 3 48	9 16 58	11 7 0	0 27 2	2 10 12	

Proportional Parts

Variation in 4 mins. :	0°—55'	0°—57'	1°—0'	1°—2'	1°—5'	1°—7'	1°—10'
Variation in 3 mins.	41'	43'	45'	47'	49'	50'	53'
" " 2 mins.	28	29	30	31	33	34	35
" " 1 min.	14	14	15	15	16	17	17

Ascendant for Latitude 9° 0' North

(For Tuticorin 8°N48', etc.)

Minute	SIDEREAL TIME																	
	0h		3h		6h		9h		12h		15h		18h		21h	
	s ° '		s ° '		s ° '		s ° '		s ° '		s ° '		s ° '		s ° '	
0	2 10 36		3 22 11		5 7 0		6 21 49		8 3 24		9 16 38		11 7 0		0 27 22	
4	11 31		23 9		8 1		22 46		4 18		17 40		8 10		28 24	
8	12 26		24 6		9 2		23 43		5 13		18 43		9 20		0 29 26	
12	13 21		25 4		10 4		24 40		6 8		19 46		10 31		1 0 27	
16	14 15		26 2		11 5		25 37		7 3		20 49		11 41		1 28	
20	15 10		26 59		12 6		26 34		7 58		21 52		12 51		2 29	
24	16 5		27 58		13 7		27 31		8 54		22 55		14 1		3 30	
28	16 59		28 56		14 8		28 27		9 49		23 59		15 11		4 31	
32	2 17 54		3 29 54		5 15 9		6 29 24		8 10 44		9 25 3		11 16 21		1 5 31	
36	18 49		4 0 52		16 10		7 0 20		11 40		26 8		17 31		6 31	
40	19 43		1 51		17 11		1 16		12 35		27 12		18 40		7 31	
44	20 38		2 50		18 12		2 12		13 31		28 17		19 50		8 30	
48	21 33		3 48		19 13		3 8		14 26		9 29 22		21 0		9 30	
52	22 27		4 47		20 14		4 4		15 22		10 0 27		22 9		10 29	
56	23 22		5 46		21 14		5 0		16 18		1 33		23 18		11 28	
	1h		4h		7h		10h		13h		16h		19h		22h	
0	2 24 17		4 6 45		5 22 15		7 5 56		8 17 14		10 2 39		11 24 27		1 12 27	
4	25 12		7 45		23 16		6 52		18 10		3 45		25 36		13 25	
8	26 6		8 44		24 16		7 47		19 7		4 51		26 45		14 24	
12	27 1		9 43		25 17		8 43		20 3		5 58		27 54		15 22	
16	27 56		10 43		26 17		9 38		21 0		7 4		11 29 2		16 20	
20	28 51		11 43		27 17		10 33		21 56		8 11		0 0 10		17 17	
24	2 29 46		12 42		28 18		11 29		22 53		9 19		1 18		18 15	
28	3 0 41		13 42		5 29 18		12 24		23 50		10 26		2 26		19 12	
32	3 1 36		4 14 42		6 0 18		7 13 19		8 24 48		10 11 34		0 3 34		1 20 10	
36	2 31		15 42		1 18		14 14		25 45		12 42		4 41		21 7	
40	3 27		16 43		2 17		15 9		26 43		13 50		[illegible] 49		22 4	
44	4 22		17 43		3 17		16 4		27 40		14 58		[illegible] 56		23 0	
48	5 17		18 43		4 17		16 59		28 38		16 6		[illegible]		23 57	
52	6 13		19 44		5 16		17 54		8 29 36		17 15		9 [illegible]		24 53	
56	7 8		20 44		6 15		18 48		9 0 35		18 24		10 15		25 50	
	2h		5h		8h		11h		14h		17h		20h		23h	
0	3 8 4		4 21 45		6 7 15		7 19 43		9 1 33		10 19 33		0 11 21		1 26 46	
4	9 0		22 46		8 14		20 38		2 32		20 42		12 27		27 42	
8	9 56		23 46		9 13		21 33		3 31		21 51		13 33		28 38	
12	10 52		24 47		10 12		22 27		4 30		23 0		14 38		1 29 34	
16	11 48		25 48		11 10		23 22		5 30		24 10		15 43		2 0 29	
20	12 44		26 49		12 9		24 17		6 29		25 20		16 48		1 25	
24	13 40		27 50		13 8		25 11		7 29		26 29		17 52		2 20	
28	14 36		28 51		14 6		26 6		8 29		27 39		18 57		3 16	
32	3 15 33		4 29 52		6 15 4		7 27 1		9 9 29		10 28 49		0 20 1		2 4 11	
36	16 29		5 0 53		16 2		27 55		10 30		10 29 59		21 5		5 6	
40	17 26		1 54		17 1		28 50		11 31		11 1 9		22 8		6 2	
44	18 23		2 55		17 58		7 29 45		12 32		2 19		23 11		6 57	
48	19 20		3 56		18 56		8 0 39		13 33		3 29		24 14		7 52	
52	20 17		4 58		19 54		1 34		14 34		4 40		25 17		8 47	
56	21 14		5 59		20 51		2 29		15 36		5 50		26 20		9 42	
60	3 22 11		5 7 0		6 21 49		8 3 24		9 16 38		11 7 0		0 27 22		2 10 36	

Proportional Parts

	0°—55'	0°—57'	1°—0'	1°—2'	1°—5'	1°—7'	1°—10'
Variation in 4 mins.							
Variation in 3 mins.	41'	43'	45'	47'	49'	50'	53'
" " 2 mins.	28	29	30	31	33	34	35
" " 1 min.	14	14	15	15	16	17	17

Ascendant for Latitude 10° 0' North

(For Madurai, Cochin, Ernakulam etc.)

Minute	SIDEREAL TIME																	
	0h			3h			6h			9h			12h			15h			18h			21h		
	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'
0	2	11	1	3	22	28	5	7	0	6	21	32	8	2	59	9	16	17	11	7	0	0	27	43
4		11	56		23	25		8	1		22	29		3	54		17	20		8	11		28	45
8		12	50		24	23		9	2		23	26		4	49		18	23		9	22	0	29	47
12		13	45		25	20		10	2		24	22		5	44		19	26		10	32	1	0	49
16		14	40		26	18		11	3		25	19		6	39		20	29		11	43		1	50
20		15	34		27	15		12	4		26	15		7	34		21	33		12	54		2	51
24		16	29		28	13		13	4		27	12		8	29		22	36		14	4		3	52
28		17	23	3	29	11		14	5		28	8		9	24		23	41		15	15		4	53
32	2	18	18	4	0	9	5	15	6	6	29	4	8	10	19	9	24	45	11	16	26	1	5	53
36		19	13		1	7		16	6	7	0	1		11	15		25	50		17	36		6	54
40		20	7		2	5		17	7		0	57		12	10		26	54		18	46		7	54
44		21	2		3	3		18	7		1	53		13	6		28	0		19	56		8	53
48		21	56		4	2		19	8		2	48		14	2	9	29	5		21	7		9	53
52		22	51		5	0		20	8		3	44		14	57	10	0	11		22	17		10	52
56		23	45		5	59		21	8		4	40		15	53		1	17		23	26		11	51
	1h			4h			7h			10h			13h			16h			19h			22h		
0	2	24	40	4	6	58	5	22	9	7	5	35	8	16	49	10	2	23	11	24	36	1	12	50
4		25	34		7	57		23	9		6	31		17	46		3	29		25	45		13	49
8		26	29		8	56		24	9		7	26		18	42		4	36		26	55		14	47
12		27	24		9	55		25	9		8	21		19	39		5	43		28	4		15	46
16		28	19		10	54		26	9		9	17		20	35		6	50	11	29	13		16	44
20	2	29	13		11	53		27	9		10	12		21	32		7	58	0	0	22		17	41
24	3	0	8		12	53		28	9		11	7		22	29		9	6		1	30		18	39
28		1	3		13	52	5	29	8		12	2		23	26		10	13		2	38		19	37
32	3	1	58	4	14	52	6	0	8	7	12	57	8	24	23	10	11	22	0	3	46	1	20	34
36		2	53		15	51		1	7		13	52		25	21		12	30		4	54		21	31
40		3	48		16	51		2	7		14	47		26	19		13	38		6	2		22	28
44		4	43		17	51		3	6		15	41		27	16		14	47		7	10		23	25
48		5	39		18	51		4	5		16	36		28	14		15	56		8	17		24	21
52		6	34		19	51		5	4		17	31	8	29	13		17	5		9	24		25	18
56		7	29		20	51		6	3		18	26	9	0	11		18	15		10	31		26	14
	2h			5h			8h			11h			14h			17h			20h			23h		
0	3	8	25	4	21	51	6	7	2	7	19	20	9	1	10	10	19	24	0	11	37	1	27	11
4		9	20		22	52		8	1		20	15		2	9		20	34		12	43		28	7
8		10	16		23	52		9	0		21	9		3	8		21	44		13	49		29	3
12		11	12		24	52		9	58		22	4		4	7		22	54		14	55	1	29	58
16		12	7		25	53		10	57		22	58		5	7		24	4		16	0	2	0	54
20		13	3		26	53		11	55		23	53		6	6		25	14		17	5		1	50
24		13	59		27	54		12	53		24	48		7	6		26	24		18	10		2	45
28		14	56		28	54		13	51		25	42		8	7		27	34		19	15		3	41
32	3	15	52	4	29	55	6	14	49	7	26	37	9	9	7	10	28	45	0	20	20	2	4	36
36		16	48	5	0	56		15	47		27	31		10	8	10	29	56		21	24		5	31
40		17	45		1	56		16	45		28	26		11	9	11	1	6		22	27		6	26
44		18	41		2	57		17	42	7	29	20		12	10		2	17		23	31		7	21
48		19	38		3	58		18	40	8	0	15		13	11		3	28		24	34		8	16
52		20	34		4	58		19	37		1	10		14	13		4	38		25	37		9	11
56		21	31		5	59		20	35		2	5		15	15		5	49		26	40		10	6
60	3	22	28	5	7	0	6	21	32	8	2	59	9	16	17	11	7	0	0	27	43	2	11	1

Proportional Parts

Variation in 4 mins. :	0°—54'	0°—57'	1°—0'	1°—3'	1°—6'	1°—9'	1°—11'
Variation in 3 mins.	40'	43'	45'	47'	49'	52'	53'
" " 2 mins.	27	29	30	32	33	35	36
" " 1 min.	14	14	15	16	17	17	18

Ascendant for Latitude 11° 0' North

(For Coimbatore 11°N0', Tiruchirapalli 10°N50', Thanjavur 10°N47', etc.)

Minute	SIDEREAL TIME																	
	0h			3h			6h			9h			12h			15h			18h			21h		
	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'
0	2	11	25	3	22	45	5	7	0	6	21	15	8	2	35	9	15	56	11	7	0	0	28	4
4		12	20		23	42		8	0		22	11		3	29		16	59		8	11	0	29	6
8		13	15		24	39		9	1		23	8		4	24		18	2		9	23	1	0	8
12		14	9		25	36		10	1		24	4		5	19		19	5		10	34		1	10
16		15	4		26	33		11	1		25	1		6	14		20	9		11	45		2	12
20		15	58		27	31		12	2		25	57		7	9		21	13		12	57		3	14
24		16	53		28	28		13	2		26	53		8	4		22	17		14	8		4	15
28		17	47	3	29	26		14	2		27	49		8	59		23	21		15	19		5	16
32	2	18	42	4	0	23	5	15	2	6	28	45	8	9	55	9	24	26	11	16	30	1	6	16
36		19	36		1	21		16	2	6	29	41		10	50		25	31		17	41		7	17
40		20	31		2	19		17	2	7	0	37		11	45		26	37		18	52		8	17
44		21	25		3	17		18	2		1	33		12	41		27	42		20	3		9	17
48		22	20		4	15		19	2		2	28		13	37		28	48		21	14		10	16
52		23	14		5	13		20	2		3	24		14	33	9	29	54		22	24		11	16
56		24	9		6	12		21	2		4	19		15	29	10	1	0		23	34		12	15
	1h			4h			7h			10h			13h			16h			19h			22h		
0	2	25	3	4	7	10	5	22	2	7	5	15	8	16	25	10	2	7	11	24	45	1	13	14
4		25	58		8	8		23	2		6	10		17	21		3	14		25	55		14	13
8		26	52		9	7		24	2		7	5		18	17		4	21		27	5		15	11
12		27	47		10	6		25	1		8	0		19	14		5	28		28	14		16	10
16		28	41		11	5		26	1		8	55		20	10		6	36	11	29	24		17	8
20	2	29	36		12	4		27	0		9	50		21	7		7	44	0	0	33		18	6
24	3	0	31		13	3		28	0		10	45		22	4		8	52		1	42		19	4
28		1	25		14	2		29	0		11	40		23	2		10	0		2	51		20	1
32	3	2	20	4	15	1	5	29	58	7	12	35	8	23	59	10	11	9	0	4	0	1	20	58
36		3	15		16	0	6	0	57		13	29		24	56		12	18		5	8		21	56
40		4	10		17	0		1	56		14	24		25	54		13	27		6	16		22	53
44		5	5		17	59		2	55		15	19		26	52		14	36		7	24		23	50
48		6	0		18	59		3	54		16	13		27	50		15	46		8	32		24	46
52		6	55		19	58		4	53		17	8		28	49		16	55		9	39		25	43
56		7	50		20	58		5	52		18	2	8	29	47		18	5		10	46		26	39
	2h			5h			8h			11h			14h			17h			20h			23h		
0	3	8	45	4	21	58	6	6	50	7	18	57	9	0	46	10	19	15	0	11	53	1	27	35
4		9	41		22	58		7	48		19	51		1	45		20	26		13	0		28	31
8		10	36		23	58		8	47		20	46		2	44		21	36		14	6	1	29	27
12		11	32		24	58		9	45		21	40		3	44		22	46		15	12	2	0	23
16		12	27		25	58		10	43		22	35		4	43		23	57		16	18		1	19
20		13	23		26	58		11	41		23	29		5	43		25	8		17	23		2	15
24		14	19		27	58		12	39		24	24		6	43		26	19		18	29		3	10
28		15	15		28	58		13	37		25	18		7	44		27	30		19	34		4	5
32	3	16	11	4	29	58	6	14	31	7	26	13	9	8	44	10	28	41	0	20	30	2	5	1
36		17	7	5	0	58		15	32		27	7		9	45	10	29	52		21	43		5	56
40		18	3		1	58		16	29		28	2		10	47	11	1	3		22	47		6	51
44		18	59		2	59		17	27		28	56		11	48		2	15		23	51		7	46
48		19	56		3	59		18	24	7	29	51		12	50		3	26		24	55		8	41
52		20	52		4	59		19	21	8	0	45		13	52		4	37		25	58		9	36
56		21	49		6	0		20	18		1	40		14	54		5	49		27	1		10	31
60	3	22	45	5	7	0	6	21	15	8	2	35	9	15	56	11	7	0	0	28	4	2	11	25

Proportional Parts

Variation in 4 mins. :	0°—54'	0°—57'	1°—0'	1°—3'	1°—6'	1°—9'	1°—11'
Variation in 3 mins.	40'	43'	45'	47'	49'	52'	53'
" " 2 mins.	27	29	30	32	33	35	36
" " 1 min.	14	14	15	16	17	17	18

Ascendant for Latitude 12° 0' North

(For Pondicherry 11°N56', Mysore 12°N18', etc.)

Minute	SIDEREAL TIME																							
	0h			3h			6h			9h			12h			15h			18h			21h		
	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'
0	2	11	50	3	23	2	5	7	0	6	20	58	8	2	10	9	15	35	11	7	0	0	28	25
4		12	45		23	59		8	0		21	54		3	5		16	38		8	12	0	29	28
8		13	39		24	56		9	0		22	50		3	59		17	41		9	24	1	0	30
12		14	34		25	52		10	0		23	46		4	54		18	45		10	36		1	32
16		15	28		26	49		10	59		24	43		5	49		19	49		11	48		2	34
20		16	23		27	46		11	59		25	39		6	44		20	53		13	0		3	36
24		17	17		28	43		12	59		26	35		7	39		21	57		14	12		4	37
28		18	12	3	29	41		13	59		27	31		8	34		23	2		15	24		5	38
32	2	19	6	4	0	38	5	14	59	6	28	26	8	9	29	9	24	7	11	16	35	1	6	39
36		20	0		1	35		15	58	6	29	22		10	25		25	13		17	47		7	40
40		20	55		2	33		16	58	7	0	17		11	20		26	18		18	58		8	40
44		21	49		3	31		17	58		1	13		12	16		27	24		20	10		9	40
48		22	43		4	28		18	57		2	8		13	12		28	30		21	21		10	40
52		23	38		5	26		19	57		3	4		14	8	9	29	37		22	32		11	40
56		24	32		6	24		20	56		3	59		15	4	10	0	44		23	43		12	39
	1h			4h			7h			10h			13h			16h			19h			22h		
0	2	25	26	4	7	22	5	21	56	7	4	54	8	16	0	10	1	51	11	24	54	1	13	38
4		26	21		8	20		22	55		5	49		16	56		2	58		26	4		14	37
8		27	15		9	19		23	55		6	44		17	52		4	5		27	15		15	36
12		28	9		10	17		24	54		7	39		18	49		5	13		28	25		16	34
16		29	4		11	15		25	53		8	34		19	45		6	21	11	29	35		17	32
20	2	29	58		12	14		26	52		9	28		20	42		7	30	0	0	45		18	30
24	3	0	53		13	13		27	51		10	23		21	39		8	38		1	54		19	28
28		1	47		14	11		28	50		11	18		22	37		9	47		3	4		20	26
32	3	2	42	4	15	10	5	29	49	7	12	13	8	23	34	10	10	56	0	4	13	1	24	23
36		3	37		16	9	6	0	47		13	7		24	32		12	6		5	22		22	21
40		4	32		17	8		1	46		14	2		25	30		13	15		6	30		23	18
44		5	26		18	7		2	45		14	56		26	28		14	25		7	39		24	15
48		6	21		19	6		3	43		15	51		27	26		15	35		8	47		25	11
52		7	16		20	6		4	41		16	45		28	24		16	45		9	55		26	8
56		8	11		21	5		5	40		17	39	8	29	23		17	56		11	2		27	4
	2h			5h			8h			11h			14h			17h			20h			23h		
0	3	9	6	4	22	4	6	6	38	7	18	34	9	0	22	10	19	6	0	12	9	1	28	0
4		10	1		23	4		7	36		19	28		1	21		20	17		13	16		28	56
8		10	56		24	3		8	34		20	22		2	20		21	28		14	23	1	29	52
12		11	52		25	3		9	32		21	17		3	20		22	39		15	30	2	0	48
16		12	47		26	2		10	29		22	11		4	20		23	50		16	36		1	44
20		13	43		27	2		11	27		23	5		5	20		25	2		17	42		2	40
24		14	38		28	2		12	25		24	0		6	20		26	13		18	47		3	35
28		15	34	4	29	1		13	22		24	54		7	21		27	25		19	53		4	31
32	3	16	30	5	0	1	6	14	19	7	25	48	9	8	22	10	28	36	0	20	58	2	5	26
36		17	26		1	1		15	17		26	43		9	23	10	29	48		22	3		6	21
40		18	22		2	1		16	14		27	37		10	24	11	1	0		23	7		7	16
44		19	18		3	1		17	11		28	32		11	26		2	12		24	11		8	11
48		20	14		4	0		18	8	7	29	26		12	28		3	24		25	15		9	6
52		21	10		5	0		19	4	8	0	21		13	30		4	36		26	19		10	1
56		22	6		6	0		20	1		1	15		14	32		5	48		27	22		10	55
60	3	23	2	5	7	0	6	20	58	8	2	10	9	15	35	11	7	0	0	28	25	2	11	50

Proportional Parts

Variation in 4 mins. :	0°—54'	0°—57'	1°—0'	1°—3'	1°—6'	1°—9'	1°—12'
Variation in 3 mins.	40'	43'	45'	47'	49'	52'	54'
" " 2 mins.	27	29	30	32	33	35	36
" " 1 min.	14	14	15	16	17	17	18

Ascendant for Latitude 13° 0' North

(For Bangalore 12°N58', Vellore 12°N55', Mangalore 12°N52', etc.)

Minute	SIDEREAL TIME								
	0h	3h	6h	9h	12h	15h	18h	21h	
	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	
0	2 12 15	3 23 19	5 7 0	6 20 41	8 1 45	9 15 13	11 7 10	0 28 47	
4	13 9	24 16	8 0	21 37	2 40	16 16	8 13	0 29 50	
8	14 4	25 12	8 59	22 33	3 34	17 20	9 25	1 0 53	
12	14 58	26 9	9 58	23 29	4 29	18 24	10 38	1 55	
16	15 53	27 5	10 58	24 25	5 24	19 28	11 51	2 57	
20	16 47	28 2	11 57	25 20	6 19	20 33	13 3	3 59	
24	17 42	28 59	12 57	26 16	7 14	21 37	14 16	5 1	
28	18 36	3 29 56	13 56	27 12	8 9	22 42	15 28	6 2	
32	2 19 30	4 0 53	5 14 55	6 28 7	8 9 4	9 23 48	11 16 40	1 7 3	
36	20 24	1 50	15 55	29 2	10 0	24 54	17 52	8 4	
40	21 19	2 47	16 54	6 29 58	10 55	26 0	19 4	9 4	
44	22 13	3 44	17 53	7 0 53	11 51	27 6	20 16	10 4	
48	23 7	4 41	18 52	1 48	12 46	28 12	21 28	11 4	
52	24 1	5 39	19 51	2 43	13 42	9 29 19	22 40	12 4	
56	24 55	6 37	20 50	3 38	14 38	10 0 26	23 52	13 3	
	1h	4h	7h	10h	13h	16h	19h	22h	
0	2 25 50	4 7 34	5 21 49	7 4 33	8 15 34	10 1 34	11 25 3	1 14 3	
4	26 44	8 32	22 48	5 28	16 31	2 42	26 14	15 2	
8	27 38	9 30	23 47	6 23	17 27	3 50	27 25	16 0	
12	28 32	10 28	24 46	7 18	18 24	4 58	28 36	16 59	
16	2 29 27	11 26	25 45	8 12	19 20	6 6	11 29 46	17 57	
20	3 0 21	12 24	26 43	9 7	20 17	7 15	0 0 57	18 55	
24	1 15	13 23	27 42	10 1	21 14	8 24	2 7	19 53	
28	2 10	14 21	28 41	10 56	22 12	9 34	3 17	20 51	
32	3 3 4	4 15 19	5 29 39	7 11 50	8 23 9	10 10 43	0 4 26	1 21 48	
36	3 59	16 18	6 0 37	12 45	24 7	11 53	5 36	22 46	
40	4 53	17 17	1 36	13 39	25 5	13 3	6 45	23 43	
44	5 48	18 15	2 34	14 33	26 3	14 14	7 54	24 40	
48	6 42	19 14	3 32	15 28	27 1	15 24	9 2	25 36	
52	7 37	20 13	4 30	16 22	28 0	16 35	10 10	26 33	
56	8 32	21 12	5 28	17 16	28 58	17 46	11 18	27 29	
	2h	5h	8h	11h	14h	17h	20h	23h	
0	3 9 27	4 22 11	6 6 26	7 18 10	8 29 57	10 18 57	0 12 26	1 28 26	
4	10 22	23 10	7 23	19 5	9 0 57	20 8	13 34	1 29 22	
8	11 17	24 9	8 21	19 59	1 56	21 20	14 41	2 0 18	
12	12 12	25 8	9 19	20 53	2 56	22 32	15 48	1 14	
16	13 7	26 7	10 16	21 47	3 56	23 44	16 54	2 9	
20	14 2	27 6	11 13	22 41	4 56	24 56	18 0	3 5	
24	14 58	28 5	12 10	23 36	5 56	26 8	19 6	4 0	
28	15 53	4 29 5	13 7	24 30	6 57	27 20	20 12	4 56	
32	3 16 48	5 0 4	6 14 4	7 25 24	9 7 58	10 28 32	0 21 18	2 5 51	
36	17 44	1 3	15 1	26 18	8 59	10 29 44	22 23	6 46	
40	18 40	2 3	15 58	27 13	10 1	11 0 57	23 27	7 41	
44	19 35	3 2	16 55	28 7	11 3	2 9	24 32	8 36	
48	20 31	4 2	17 51	29 2	12 5	3 22	25 36	9 31	
52	21 27	5 1	18 48	7 29 56	13 7	4 35	26 40	10 26	
56	22 23	6 0	19 44	8 0 51	14 10	5 47	27 44	11 20	
60	3 23 19	5 7 0	6 20 41	8 1 45	9 15 13	11 7 0	0 28 47	2 12 15	

Proportional Parts

Variation in 4 mins. :	0°—54'	0°—57'	1°—0'	1°—3'	1°—6'	1°—9'	1°—12'
Variation in 3 mins.	40'	43'	45'	47'	49'	52'	54'
" " 2 mins.	27	29	30	32	33	35	36
" " 1 min.	14	14	15	16	17	17	18

Ascendant for MADRAS Latitude 13° 4' North

(Also for all other places in or near 13°N04' latitude etc.)

Minute	SIDEREAL TIME																	
	0h			3h			6h			9h			12h			15h			18h			21h		
	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'
0	2	12	17	3	23	20	5	7	0	6	20	40	8	1	43	9	15	11	11	7	0	0	28	49
4		13	11		24	17		8	0		21	36		2	38		16	14		8	13	0	29	52
8		14	6		25	13		8	59		22	32		3	32		17	18		9	25	1	0	55
12		15	0		26	10		9	58		23	28		4	27		18	22		10	38		1	57
16		15	55		27	6		10	58		24	23		5	22		19	26		11	51		2	59
20		16	49		28	3		11	57		25	19		6	17		20	31		13	3		4	1
24		17	44		29	0		12	57		26	14		7	12		21	35		14	16		5	3
28		18	38	3	29	57		13	56		27	10		8	7		22	40		15	28		6	4
32	2	19	32	4	0	54	5	14	55	6	28	5	8	9	2	9	23	46	11	16	40	1	7	5
36		20	26		1	51		15	55		29	0		9	58		24	52		17	52		8	6
40		21	21		2	48		16	54	6	29	56		10	53		25	58		19	5		9	6
44		22	15		3	45		17	53	7	0	51		11	49		27	4		20	17		10	6
48		23	9		4	42		18	52		1	46		12	44		28	11		21	29		11	6
52		24	3		5	40		19	51		2	41		13	40	9	29	18		22	41		12	6
56		24	57		6	38		20	50		3	36		14	36	10	0	25		23	53		13	5
	1h			4h			7h			10h			13h			16h			19h			22h		
0	2	25	52	4	7	35	5	21	49	7	4	31	8	15	32	10	1	33	11	25	4	1	14	5
4		26	46		8	33		22	48		5	26		16	29		2	41		26	15		15	4
8		27	40		9	31		23	46		6	21		17	25		3	49		27	26		16	2
12		28	34		10	29		24	45		7	16		18	22		4	57		28	37		17	1
16	2	29	29		11	27		25	44		8	10		19	18		6	5	11	29	47		17	59
20	3	0	23		12	25		26	42		9	5		20	15		7	14	0	0	58		18	57
24		1	17		13	24		27	41		9	59		21	12		8	23		2	8		19	55
28		2	12		14	22		28	40		10	54		22	10		9	33		3	18		20	53
32	3	3	6	4	15	20	5	29	38	7	11	48	8	23	7	10	10	42	0	4	27	1	21	50
36		4	1		16	19	6	0	36		12	43		24	5		11	52		5	37		22	48
40		4	55		17	18		1	35		13	37		25	3		13	2		6	46		23	45
44		5	50		18	16		2	33		14	31		26	1		14	13		7	55		24	42
48		6	44		19	15		3	31		15	26		26	59		15	23		9	3		25	38
52		7	39		20	14		4	29		16	20		27	58		16	34		10	11		26	35
56		8	34		21	12		5	27		17	14		28	56		17	45		11	19		27	31
	2h			5h			8h			11h			14h			17h			20h			23h		
0	3	9	29	4	22	11	6	6	25	7	18	8	8	29	55	10	18	56	0	12	27	1	28	28
4		10	24		23	10		7	22		19	3	9	0	55		20	7		13	35	1	29	24
8		11	19		24	9		8	20		19	57		1	54		21	19		14	42	2	0	20
12		12	14		25	8		9	18		20	51		2	54		22	31		15	49		1	16
16		13	9		26	7		10	15		21	45		3	54		23	43		16	56		2	11
20		14	4		27	6		11	12		22	39		4	54		24	55		18	2		3	7
24		15	0		28	5		12	9		23	34		5	54		26	8		19	8		4	2
28		15	55	4	29	5		13	6		24	28		6	55		27	20		20	14		4	58
32	3	16	50	5	0	4	6	14	3	7	25	22	9	7	56	10	28	32	0	21	20	2	5	53
36		17	46		1	3		15	0		26	16		8	57	10	29	44		22	25		6	48
40		18	41		2	3		15	57		27	11		9	59	11	0	57		23	29		7	43
44		19	37		3	2		16	54		28	5		11	1		2	9		24	34		8	38
48		20	32		4	2		17	50		29	0		12	3		3	22		25	38		9	33
52		21	28		5	1		18	47	7	29	54		13	5		4	35		26	42		10	28
56		22	24		6	0		19	43	8	0	49		14	8		5	47		27	46		11	22
60	3	23	20	5	7	0	6	20	40	8	1	43	9	15	11	11	7	0	0	28	49	2	12	17

Proportional Parts

Variation in 4 mins. :	0°—54'	0°—57'	1°—0'	1°—3'	1°—6'	1°—9'	1°—12'
Variation in 3 mins.	40'	43'	45'	47'	49'	52'	54'
" " 2 mins.	27	29	30	32	33	35	36
" " 1 min.	14	14	15	16	17	17	18

Ascendant for Latitude 14° 0' North

(For Shimoga 13°N56', Gudur 14°N09', etc.)

Minute	SIDEREAL TIME																	
	0h			3h			6h			9h			12h			15h			18h			21h		
	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'
0	2	12	40	3	23	36	5	7	0	6	20	24	8	1	20	9	14	51	11	7	0	0	29	9
4		13	34		24	32		7	59		21	19		2	15		15	55		8	13	1	0	12
8		14	29		25	29		8	58		22	15		3	9		16	59		9	27		1	15
12		15	23		26	25		9	57		23	11		4	4		18	3		10	40		2	18
16		16	18		27	21		10	56		24	6		4	59		19	7		11	53		3	20
20		17	12		28	17		11	55		25	2		5	54		20	12		13	6		4	22
24		18	6	3	29	14		12	54		25	57		6	49		21	17		14	19		5	24
28		19	0	4	0	10		13	53		26	53		7	44		22	22		15	32		6	25
32	2	19	54	4	1	7	5	14	52	6	27	48	8	8	39	9	23	28	11	16	45	1	7	26
36		20	48		2	4		15	51		28	43		9	34		24	34		17	58		8	27
40		21	43		3	1		16	50	6	29	38		10	29		25	40		19	11		9	28
44		22	37		3	58		17	48	7	0	33		11	25		26	47		20	24		10	29
48		23	31		4	55		18	47		1	28		12	21		27	54		21	36		11	29
52		24	25		5	52		19	46		2	23		13	17	9	29	1		22	48		12	28
56		25	19		6	49		20	45		3	18		14	13	10	0	9		24	0		13	28
	1h			4h			7h			10h			13h			16h			19h			22h		
0	2	26	13	4	7	47	5	21	43	7	4	13	8	15	9	10	1	17	11	25	12	1	14	27
4		27	7		8	44		22	42		5	7		16	5		2	25		26	24		15	26
8		28	1		9	41		23	40		6	2		17	1		3	33		27	36		16	25
12		28	55		10	39		24	38		6	56		17	58		4	42		28	47		17	24
16	2	29	49		11	37		25	37		7	51		18	55		5	51	11	29	58		18	22
20	3	0	43		12	35		26	35		8	45		19	52		7	0	0	1	9		19	21
24		1	38		13	33		27	33		9	39		20	49		8	10		2	20		20	19
28		2	32		14	31		28	31		10	34		21	46		9	20		3	30		21	16
32	3	3	26	4	15	29	5	29	29	7	11	28	8	22	44	10	10	30	0	4	40	1	22	14
36		4	21		16	27	6	0	27		12	22		23	41		11	40		5	50		23	11
40		5	15		17	25		1	25		13	16		24	39		12	51		7	0		24	8
44		6	9		18	23		2	23		14	11		25	38		14	2		8	9		25	5
48		7	4		19	22		3	21		15	5		26	36		15	13		9	18		26	2
52		7	58		20	20		4	19		15	59		27	35		16	24		10	27		26	59
56		8	53		21	18		5	16		16	53		28	34		17	36		11	35		27	55
	2h			5h			8h			11h			14h			17h			20h			23h		
0	3	9	47	4	22	17	6	6	13	7	17	47	8	29	33	10	18	48	0	12	43	1	28	51
4		10	42		23	15		7	11		18	41	9	0	32		20	0		13	51	1	29	47
8		11	37		24	14		8	8		19	35		1	31		21	12		14	59	2	0	43
12		12	32		25	13		9	5		20	29		2	31		22	24		16	6		1	39
16		13	27		26	12		10	2		21	23		3	31		23	36		17	13		2	35
20		14	22		27	10		10	59		22	17		4	32		24	49		18	20		3	31
24		15	17		28	9		11	56		23	12		5	33		26	2		19	26		4	26
28		16	12	4	29	8		12	53		24	6		6	34		27	15		20	32		5	21
32	3	17	7	5	0	7	6	13	50	7	25	0	9	7	35	10	28	28	0	21	38	2	6	16
36		18	3		1	6		14	46		25	54		8	36	10	29	41		22	43		7	11
40		18	58		2	5		15	43		26	48		9	38	11	0	54		23	48		8	6
44		19	54		3	4		16	39		27	42		10	40		2	7		24	53		9	1
48		20	49		4	3		17	35		28	37		11	42		3	20		25	57		9	56
52		21	45		5	2		18	31	7	29	31		12	45		4	33		27	1		10	51
56		22	41		6	1		19	28	8	0	26		13	48		5	47		28	5		11	45
60	3	23	36	5	7	0	6	20	24	8	1	20	9	14	51	11	7	0	0	29	9	2	12	40

Proportional Parts

Variation in 4 mins. :	0°—54'	0°—57'	1°—0'	1°—3'	1°—6'	1°—9'	1°—13'
Variation in 3 mins.	40'	43'	45'	47'	49'	52'	55'
" " 2 mins.	27	29	30	32	33	35	37
" " 1 min.	14	14	15	16	17	17	18

Ascendant for Latitude 15° 0' North

(For Bellary 15°N09', etc.)

Minute	SIDEREAL TIME							
	0h	3h	6h	9h	12h	15h	18h	21h
	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '
0	2 13 5	3 23 53	5 7 0	6 20 7	8 0 55	9 14 28	11 7 0	0 29 32
4	14 0	24 49	7 59	21 2	1 49	15 32	8 14	1 0 35
8	14 54	25 45	8 58	21 58	2 44	16 36	9 28	1 38
12	15 48	26 41	9 56	22 53	3 38	17 41	10 42	2 41
16	16 42	27 37	10 54	23 49	4 33	18 46	11 56	3 44
20	17 37	28 33	11 53	24 44	5 28	19 51	13 10	4 46
24	18 31	3 29 29	12 51	25 39	6 23	20 56	14 23	5 48
28	19 25	4 0 25	13 50	26 34	7 18	22 2	15 37	6 49
32	2 20 19	4 1 21	5 14 48	6 27 29	8 8 13	9 23 8	11 16 51	1 7 51
36	21 13	2 18	15 47	28 24	9 8	24 14	18 4	8 52
40	22 7	3 14	16 45	6 29 19	10 4	25 21	19 18	9 53
44	23 1	4 11	17 44	7 0 13	10 59	26 28	20 31	10 53
48	23 55	5 8	18 42	1 8	11 55	27 35	21 44	11 53
52	24 49	6 5	19 40	2 3	12 51	28 43	22 57	12 53
56	25 42	7 2	20 39	2 57	13 47	9 29 51	24 10	13 53
	1h	4h	7h	10h	13h	16h	19h	22h
0	2 26 36	4 7 59	5 21 37	7 3 52	8 14 43	10 0 59	11 25 22	1 14 53
4	27 30	8 56	22 35	4 46	15 39	2 8	26 34	15 52
8	28 24	9 53	23 33	5 41	16 35	3 17	27 46	16 51
12	2 29 18	10 50	24 31	6 35	17 32	4 26	11 28 58	17 49
16	3 0 12	11 47	25 29	7 29	18 29	5 36	0 0 10	18 48
20	1 6	12 45	26 27	8 23	19 26	6 45	1 22	19 46
24	2 0	13 42	27 25	9 18	20 23	7 55	2 33	20 44
28	2 54	14 40	28 22	10 12	21 20	9 6	3 44	21 42
32	3 3 48	4 15 38	5 29 20	7 11 6	8 22 18	10 10 16	0 4 54	1 22 40
36	4 42	16 35	6 0 18	12 0	23 16	11 27	6 5	23 37
40	5 37	17 33	1 15	12 54	24 14	12 38	7 15	24 34
44	6 31	18 31	2 13	13 48	25 12	13 50	8 24	25 31
48	7 25	19 29	3 10	14 42	26 11	15 2	9 34	26 28
52	8 19	20 27	4 7	15 36	27 9	16 14	10 43	27 25
56	9 14	21 25	5 4	16 30	28 8	17 26	11 52	28 21
	2h	5h	8h	11h	14h	17h	20h	23h
0	3 10 8	4 22 23	6 6 1	7 17 24	8 29 7	10 18 38	0 13 1	1 29 17
4	11 3	23 21	6 58	18 18	9 0 7	19 50	14 9	2 0 13
8	11 57	24 20	7 55	19 11	1 7	21 3	15 17	1 9
12	12 52	25 18	8 52	20 5	2 7	22 16	16 25	2 5
16	13 46	26 16	9 49	20 59	3 7	23 29	17 32	3 1
20	14 41	27 15	10 45	21 53	4 7	24 42	18 39	3 56
24	15 36	28 13	11 42	22 47	5 8	25 56	19 46	4 52
28	16 31	4 29 12	12 39	23 41	6 9	27 9	20 52	5 47
32	3 17 26	5 0 10	6 13 35	7 24 35	9 7 11	10 28 23	0 21 58	2 6 42
36	18 21	1 9	14 31	25 29	8 12	10 29 37	23 4	7 37
40	19 16	2 7	15 27	26 23	9 14	11 0 50	24 9	8 32
44	20 11	3 6	16 23	27 18	10 16	2 4	25 14	9 27
48	21 7	4 4	17 19	28 12	11 19	3 18	26 19	10 22
52	22 2	5 3	18 15	7 29 6	12 22	4 32	27 24	11 16
56	22 58	6 1	19 11	8 0 0	13 25	5 46	28 28	12 11
60	3 23 53	5 7 0	6 20 7	8 0 55	9 14 28	11 7 0	0 29 32	2 13 5

Proportional Parts

Variation in 4 mins. :	0°—54'	0°—57'	1°—0'	1°—4'	1°—7'	1°—11'	1°—14'
Variation in 3 mins.	40'	43'	45'	48'	50'	53'	55'
" " 2 mins.	27	29	30	32	34	36	37
" " 1 min.	14	14	15	16	17	18	19

Ascendant for Latitude 16° 0' North

(For Kurnool 15°N50', Machilipatnam 16°N09', etc.)

Minute	SIDEREAL TIME																	
	0h			3h			6h			9h			12h			15h			18h			21h		
	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'
0	2	13	31	3	24	10	5	7	0	6	19	50	8	0	29	9	14	5	11	7	0	0	29	55
4		14	25		25	6		7	58		20	45		1	24		15	9		8	15	1	0	58
8		15	19		26	1		8	56		21	40		2	18		16	14		9	29		2	2
12		16	13		26	57		9	54		22	35		3	13		17	19		10	44		3	5
16		17	7		27	52		10	53		23	30		4	7		18	24		11	59		4	7
20		18	1		28	48		11	51		24	25		5	2		19	29		13	13		5	10
24		18	55	3	29	44		12	49		25	20		5	57		20	35		14	28		6	12
28		19	49	4	0	40		13	47		26	15		6	52		21	41		15	42		7	14
32	2	20	43	4	1	36	5	14	45	6	27	10	8	7	47	9	22	47	11	16	56	1	8	16
36		21	37		2	32		15	43		28	5		8	42		23	54		18	10		9	17
40		22	31		3	28		16	41		28	59		9	38		25	1		19	24		10	18
44		23	25		4	25		17	39	6	29	54		10	33		26	8		20	38		11	18
48		24	19		5	21		18	27	7	0	48		11	29		27	16		21	52		12	19
52		25	12		6	17		19	35		1	42		12	25		28	24		23	6		13	19
56		26	6		7	14		20	33		2	37		13	20	9	29	33		24	19		14	19
	1h			4h			7h			10h			13h			16h			19h			22h		
0	2	27	0	4	8	11	5	21	31	7	3	31	8	14	17	10	0	41	11	25	32	1	15	18
4		27	54		9	7		22	28		4	25		15	13		1	50		26	45		16	17
8		28	48		10	4		23	26		5	19		16	9		3	0		27	58		17	16
12		29	41		11	1		24	23		6	14		17	6		4	9	11	29	10		18	15
16		0	35		11	58		25	21		7	8		18	3		5	19	0	0	22		19	14
20		1	29		12	55		26	19		8	2		19	0		6	30		1	34		20	12
24		2	23		13	52		27	16		8	56		19	57		7	40		2	46		21	10
28		3	17		14	49		28	13		9	49		20	54		8	51		3	58		22	8
32	3	4	11	4	15	47	5	29	11	7	10	43	8	21	52	10	10	2	0	5	9	1	23	6
36		5	4		16	44	6	0	8		11	37		22	50		11	14		6	20		24	3
40		5	58		17	41		1	5		12	31		23	48		12	26		7	30		25	0
44		6	52		18	39		2	2		13	25		24	46		13	38		8	41		25	57
48		7	46		19	37		2	59		14	19		25	45		14	50		9	51		26	54
52		8	41		20	34		3	56		15	12		26	44		16	2		11	0		27	51
56		9	35		21	32		4	53		16	6		27	43		17	15		12	10		28	47
	2h			5h			8h			11h			14h			17h			20h			23h		
0	3	10	29	4	22	30	6	5	49	7	17	0	8	28	42	10	18	28	0	13	19	1	29	43
4		11	23		23	27		6	46		17	54	8	29	41		19	41		14	27	2	0	40
8		12	18		24	25		7	43		18	48	9	0	41		20	54		15	36		1	35
12		13	12		25	23		8	39		19	41		1	41		22	8		16	44		2	31
16		14	6		26	21		9	35		20	35		2	42		23	22		17	52		3	27
20		15	1		27	19		10	32		21	29		3	42		24	36		18	59		4	22
24		15	55		28	17		11	28		22	23		4	43		25	50		20	6		5	18
28		16	50	4	29	15		12	24		23	17		5	44		27	4		21	13		6	13
32	3	17	45	5	0	13	6	13	20	7	24	11	9	6	46	10	28	18	0	22	19	2	7	8
36		18	40		1	11		14	16		25	5		7	48	10	29	32		23	25		8	3
40		19	35		2	9		15	12		25	59		8	50	11	0	47		24	31		8	58
44		20	30		3	7		16	8		26	53		9	52		2	1		25	36		9	53
48		21	25		4	6		17	3		27	47		10	55		3	16		26	41		10	47
52		22	20		5	4		17	59		28	41		11	58		4	31		27	46		11	42
56		23	15		6	2		18	54	7	29	35		13	2		5	45		28	51		12	36
60	3	24	10	5	7	0	6	19	50	8	0	29	9	14	5	11	7	0	0	29	55	2	13	31

Proportional Parts

Variation in 4 mins. :	0°—54'	0°—57'	1°—0'	1°—4'	1°—7'	1°—11'	1°—14'
Variation in 3 mins.	40'	43'	45'	48'	50'	53'	55'
" " 2 mins.	27	29	30	32	34	36	37
" " 1 min.	14	14	15	16	17	18	19

Ascendant for Latitude 17° 0' North

(For Rangoon 16°N47', Kakinada 16°N57', Rajahmundry 17°N0', etc.)

Minute	SIDEREAL TIME																	
	0h			3h			6h			9h			12h			15h			18h			21h		
	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'
0	2	13	56	3	24	27	5	7	0	6	19	33	8	0	4	9	13	42	11	7	0	1	0	18
4		14	50		25	22		7	58		20	28		0	58		14	46		8	15		1	22
8		15	45		26	17		8	56		21	23		1	52		15	51		9	31		2	26
12		16	39		27	13		9	53		22	18		2	47		16	56		10	46		3	29
16		17	33		28	8		10	51		23	12		3	41		18	1		12	1		4	32
20		18	26		29	4		11	49		24	7		4	36		19	7		13	17		5	35
24		19	20	3	29	59		12	46		25	2		5	31		20	13		14	32		6	37
28		20	14	4	0	55		13	44		25	56		6	26		21	19		15	47		7	39
32	2	21	8	4	1	50	5	14	42	6	26	51	8	7	21	9	22	26	11	17	2	1	8	41
36		22	2		2	46		15	39		27	45		8	16		23	33		18	17		9	42
40		22	55		3	42		16	37		28	40		9	11		24	41		19	31		10	43
44		23	49		4	38		17	34	6	29	34		10	7		25	48		20	46		11	44
48		24	43		5	34		18	32	7	0	28		11	2		26	56		22	0		12	44
52		25	36		6	30		19	29		1	22		11	58		28	5		23	15		13	45
56		26	30		7	26		20	27		2	16		12	54	9	29	14		24	28		14	44
	1h			4h			7h			10h			13h			16h			19h			22h		
0	2	27	24	4	8	23	5	21	24	7	3	10	8	13	50	10	0	23	11	25	42	1	15	44
4		28	17		9	19		22	22		4	4		14	46		1	32		26	56		16	44
8	2	29	11		10	15		23	19		4	58		15	43		2	42		28	9		17	43
12	3	0	4		11	12		24	16		5	52		16	39		3	52	11	29	22		18	41
16		0	58		12	9		25	13		6	46		17	36		5	3	0	0	35		19	40
20		1	52		13	5		26	10		7	40		18	33		6	14		1	48		20	38
24		2	45		14	2		27	7		8	33		19	30		7	25		3	0		21	36
28		3	39		14	59		28	4		9	27		20	28		8	36		4	12		22	34
32	3	4	33	4	15	56	5	29	1	7	10	21	8	21	26	10	9	48	0	5	24	1	23	32
36		5	27		16	53	5	29	58		11	15		22	24		11	0		6	35		24	30
40		6	20		17	50	6	0	55		12	8		23	22		12	12		7	46		25	27
44		7	14		18	47		1	51		13	2		24	20		13	25		8	57		26	24
48		8	8		19	44		2	48		13	56		25	19		14	38		10	7		27	21
52		9	2		20	41		3	45		14	49		26	17		15	51		11	18		28	17
56		9	56		21	38		4	41		15	43		27	16		17	4		12	28	1	29	14
	2h			5h			8h			11h			14h			17h			20h			23h		
0	3	10	50	4	22	36	6	5	37	7	16	36	8	28	16	10	18	18	0	13	37	2	0	10
4		11	44		23	33		6	34		17	30	8	29	16		19	32		14	46		1	6
8		12	38		24	31		7	30		18	24	9	0	15		20	46		15	55		2	2
12		13	32		25	28		8	26		19	17		1	16		22	0		17	4		2	58
16		14	26		26	26		9	22		20	11		2	16		23	14		18	12		3	53
20		15	20		27	23		10	18		21	5		3	17		24	29		19	19		4	49
24		16	15		28	21		11	14		21	58		4	18		25	43		20	27		5	44
28		17	9	4	29	18		12	10		22	52		5	19		26	58		21	34		6	39
32	3	18	4	5	0	16	6	13	5	7	23	46	9	6	21	10	28	13	0	22	41	2	7	34
36		18	58		1	14		14	1		24	40		7	23	10	29	28		23	47		8	29
40		19	53		2	11		14	56		25	34		8	25	11	0	43		24	53		9	24
44		20	48		3	9		15	52		26	27		9	28		1	58		25	59		10	19
48		21	42		4	7		16	47		27	21		10	31		3	14		27	4		11	13
52		22	37		5	5		17	43		28	15		11	34		4	29		28	9		12	8
56		23	32		6	2		18	38	7	29	10		12	38		5	45	0	29	14		13	2
60	3	24	27	5	7	0	6	19	33	8	0	4	9	13	42	11	7	0	1	0	18	2	13	56

Proportional Parts

Variation in 4 mins. :	0°—55'	0°—58'	1°—1'	1°—5'	1°—8'	1°—12'	1°—15'
Variation in 3 mins.	41'	43'	46'	49'	51'	54'	56'
" " 2 mins.	28	29	31	33	34	36	38
" " 1 min.	14	15	15	16	17	18	19

Ascendant for Latitude 17° 30' North

(For Hyderabad 17°N26', Sholapur 17°N39', Visakhapatnam 17°N43', etc.)

Minute	SIDEREAL TIME																	
	0h			3h			6h			9h			12h			15h			18h			21h		
	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'
0	2	14	9	3	24	36	5	7	0	6	19	24	7	29	51	9	13	30	11	7	0	1	0	30
4		15	3		25	31		7	58		20	19	8	0	45		14	34		8	15		1	34
8		15	58		26	25		8	56		21	14		1	39		15	39		9	31		2	38
12		16	52		27	21		9	53		22	9		2	34		16	45		10	47		3	41
16		17	46		28	16		10	50		23	3		3	28		17	50		12	2		4	44
20		18	39	3	29	12		11	48		23	58		4	23		18	57		13	18		5	47
24		19	33	4	0	7		12	45		24	53		5	18		20	2		14	34		6	49
28		20	27		1	2		13	43		25	47		6	13		21	8		15	49		7	51
32	2	21	20	4	1	57	5	14	40	6	26	42	8	7	8	9	22	15	11	17	5	1	8	53
36		22	14		2	53		15	37		27	36		8	3		23	23		18	20		9	55
40		23	7		3	49		16	35		28	30		8	58		24	31		19	35		10	56
44		24	1		4	45		17	32	6	29	24		9	54		25	38		20	50		11	57
48		24	55		5	41		18	30	7	0	18		10	49		26	46		22	5		12	57
52		25	48		6	36		19	26		1	12		11	45		27	55		23	19		13	58
56		26	42		7	32		20	24		2	6		12	41	9	29	4		24	33		14	58
	1h			4h			7h			10h			13h			16h			19h			22h		
0	2	27	36	4	8	29	5	21	21	7	3	0	8	13	37	10	0	14	11	25	47	1	15	57
4		28	29		9	25		22	19		3	54		14	33		1	23		27	1		16	57
8	2	29	23		10	21		23	16		4	48		15	30		2	33		28	15		17	56
12	3	0	16		11	18		24	12		5	41		16	26		3	44	11	29	28		18	55
16		1	10		12	14		25	9		6	35		17	28		4	55	0	0	41		19	53
20		2	3		13	10		26	6		7	29		18	20		6	6		1	54		20	51
24		2	57		14	7		27	3		8	22		19	17		7	17		3	7		21	49
28		3	51		15	4		28	0		9	16		20	15		8	29		4	19		22	47
32	3	4	44	4	16	1	5	28	56	7	10	10	8	21	13	10	9	41	0	5	31	1	23	45
36		5	38		16	57	5	29	53		11	3		22	11		10	53		6	43		24	43
40		6	31		17	54	6	0	50		11	56		23	9		12	6		7	54		25	40
44		7	25		18	51		1	46		12	50		24	7		13	19		9	5		26	37
48		8	19		19	48		2	43		13	44		25	6		14	32		10	16		27	34
52		9	13		20	44		3	39		14	37		26	4		15	45		11	27		28	30
56		10	7		21	41		4	35		15	31		27	3		16	59		12	37	1	29	27
	2h			5h			8h			11h			14h			17h			20h			23h		
0	3	11	0	4	22	39	6	5	31	7	16	24	8	28	3	10	18	13	0	13	46	2	0	23
4		11	54		23	36		6	28		17	18	8	29	3		19	27		14	55		1	19
8		12	48		24	34		7	24		18	12	9	0	2		20	41		16	5		2	15
12		13	42		25	31		8	19		19	5		1	3		21	56		17	14		3	11
16		14	36		26	28		9	15		19	59		2	3		23	10		18	22		4	6
20		15	30		27	25		10	11		20	52		3	4		24	25		19	29		5	2
24		16	24		28	23		11	7		21	45		4	5		25	40		20	37		5	57
28		17	18	4	29	20		12	3		22	39		5	6		26	55		21	45		6	52
32	3	18	13	5	0	18	6	12	58	7	23	33	9	6	8	10	28	10	0	22	52	2	7	47
36		19	7		1	15		13	54		24	27		7	10	10	29	26		23	58		8	42
40		20	2		2	12		14	48		25	21		8	12	11	0	42		25	4		9	37
44		20	57		3	10		15	44		26	14		9	15		1	57		26	10		10	32
48		21	51		4	8		16	39		27	8		10	18		3	13		27	15		11	26
52		22	46		5	5		17	35		28	2		11	22		4	29		28	21		12	21
56		23	41		6	2		18	30		28	57		12	26		5	45	0	29	26		13	15
60	3	24	36	5	7	0	6	19	24	7	29	51	9	13	30	11	7	0	1	0	30	2	14	9

Proportional Parts

Variation in 4 mins. :	0°—54'	0°—56'	0°—57'	0°—59'	1°—0'	1°—2'	1°—3'	1°—5'
Variation in 3 mins.	40'	42'	43'	44'	45'	46'	47'	49'
" " 2 mins.	27	28	29	30	30	31	32	33
" " 1 min.	14	14	14	15	15	16	16	16

Ascendant for Latitude 18° 0' North

(For Warangal 17°N58', Vizianagram 18°N7', etc.)

Minute	SIDEREAL TIME																	
	0h			3h			6h			9h			12h			15h			18h			21h		
	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'
0	2	14	22	3	24	44	5	7	0	6	19	16	7	29	38	9	13	18	11	7	0	1	0	42
4		15	16		25	39		7	57		20	11	8	0	32		14	22		8	16		1	46
8		16	10		26	34		8	55		21	5		1	26		15	27		9	32		2	50
12		17	4		27	29		9	52		22	0		2	21		16	33		10	48		3	54
16		17	58		28	24		10	49		22	54		3	15		17	38		12	4		4	57
20		18	52	3	29	19		11	47		23	49		4	10		18	44		13	20		6	0
24		19	46	4	0	14		12	44		24	43		5	5		19	51		14	36		7	2
28		20	39		1	9		13	41		25	38		5	59		20	57		15	52		8	4
32	2	21	33	4	2	5	5	14	38	6	26	32	8	6	54	9	22	4	11	17	8	1	9	6
36		22	26		3	0		15	36		27	26		7	49		23	12		18	23		10	8
40		23	20		3	56		16	33		28	20		8	45		24	20		19	39		11	9
44		24	14		4	51		17	30	6	29	14		9	40		25	28		20	54		12	10
48		25	7		5	47		18	27	7	0	8		10	36		26	36		22	9		13	10
52		26	1		6	43		19	24		1	2		11	31		27	45		23	24		14	11
56		26	54		7	39		20	21		1	56		12	27	9	28	55		24	38		15	11
	1h			4h			7h			10h			13h			16h			19h			22h		
0	2	27	47	4	8	35	5	21	18	7	2	49	8	13	23	10	0	4	11	25	53	1	16	10
4		28	41		9	31		22	15		3	43		14	19		1	14		27	7		17	10
8	2	29	34		10	27		23	12		4	37		15	16		2	24		28	21		18	9
12	3	0	28		11	23		24	9		5	31		16	13		3	35	11	29	35		19	8
16		1	21		12	19		25	5		6	24		17	9		4	46	0	0	48		20	7
20		2	15		13	15		26	2		7	18		18	6		5	57		2	1		21	5
24		3	8		14	12		26	59		8	11		19	4		7	9		3	14		22	3
28		4	2		15	8		27	55		9	5		20	1		8	21		4	27		23	1
32	3	4	55	4	16	5	5	28	52	7	9	58	8	20	59	10	9	33	0	5	39	1	23	59
36		5	49		17	1	5	29	48		10	52		21	57		10	46		6	51		24	56
40		6	42		17	58	6	0	45		11	45		22	55		11	59		8	3		25	53
44		7	36		18	55		1	41		12	39		23	53		13	12		9	14		26	50
48		8	29		19	51		2	37		13	32		24	52		14	25		10	25		27	47
52		9	23		20	48		3	33		14	26		25	51		15	39		11	36		28	44
56		10	17		21	45		4	29		15	19	8	26	50		16	53		12	46	1	29	41
	2h			5h			8h			11h			14h			17h			20h			23h		
0	3	11	11	4	22	42	6	5	25	7	16	13	8	27	49	10	18	7	0	13	56	2	0	37
4		12	4		23	39		6	21		17	6		28	49		19	22		15	5		1	33
8		12	58		24	36		7	17		17	59	8	29	49		20	36		16	15		2	29
12		13	52		25	33		8	13		18	53	9	0	50		21	51		17	24		3	24
16		14	46		26	30		9	9		19	46		1	50		23	6		18	32		4	20
20		15	40		27	27		10	4		20	40		2	51		24	21		19	40		5	15
24		16	34		28	24		11	0		21	34		3	52		25	37		20	48		6	11
28		17	28	4	29	22		11	55		22	27		4	54		26	52		21	56		7	6
32	3	18	22	5	0	19	6	12	51	7	23	21	9	5	56	10	28	8	0	23	3	2	8	1
36		19	17		1	16		13	46		24	14		6	58	10	29	24		24	9		8	55
40		20	11		2	13		14	41		25	8		8	0	11	0	40		25	16		9	50
44		21	6		3	11		15	36		26	2		9	3		1	56		26	22		10	45
48		22	0		4	8		16	31		26	56		10	6		3	12		27	27		11	39
52		22	55		5	5		17	26		27	50		11	10		4	28		28	33		12	34
56		23	49		6	3		18	21		28	44		12	14		5	44	0	29	38		13	28
60	3	24	44	5	7	0	6	19	16	7	29	38	9	13	18	11	7	0	1	0	42	2	14	22

Proportional Parts

Variation in 4 mins. :	1°—6'	1°—8'	1°—9'	1°—11'	1°—12'	1°—14'	1°—15'	1°—16'
Variation in 3 mins.	49'	51'	52'	53'	54'	55'	56'	57'
" " 2 mins.	34	34	35	36	36	37	38	38
" " 1 min.	17	17	17	18	18	19	19	19

Ascendant for PUNE Latitude 18° 31' North

(For all other places in or near 18°N31'N, latitude)

Minute	SIDEREAL TIME								
	0h	3h	6h	9h	12h	15h	18h	21h	
	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	
0	2 14 35	3 24 53	5 7 0	6 19 7	7 29 25	9 13 5	11 7 0	1 0 55	
4	15 29	25 47	7 57	20 2	8 0 19	14 10	8 17	1 59	
8	16 23	26 42	8 54	20 56	1 13	15 15	9 33	3 3	
12	17 17	27 37	9 51	21 51	2 7	16 21	10 50	4 7	
16	18 11	28 32	10 48	22 45	3 2	17 26	12 6	5 10	
20	19 5	3 29 27	11 45	23 40	3 56	18 32	13 22	6 13	
24	19 59	4 0 22	12 42	24 34	4 51	19 39	14 39	7 15	
28	20 52	1 17	13 39	25 28	5 46	20 46	15 55	8 17	
32	2 21 46	4 2 12	5 14 36	6 26 22	8 6 41	9 21 53	11 17 11	1 9 19	
36	22 39	3 7	15 33	27 16	7 36	23 1	18 27	10 21	
40	23 33	4 3	16 30	28 10	8 31	24 9	19 43	11 22	
44	24 26	4 58	17 27	29 4	9 26	25 17	20 58	12 23	
48	25 20	5 54	18 24	6 29 58	10 22	26 26	22 14	13 24	
52	26 13	6 49	19 21	7 0 51	11 17	27 35	23 29	14 24	
56	27 6	7 45	20 18	1 45	12 13	28 45	24 44	15 24	
	1h	4h	7h	10h	13h	16h	19h	22h	
0	2 27 59	4 8 41	5 21 15	7 2 39	8 13 9	9 29 54	11 25 59	1 16 24	
4	28 53	9 37	22 11	3 32	14 5	10 1 4	27 13	17 24	
8	2 29 46	10 33	23 8	4 26	15 2	2 15	28 27	18 23	
12	3 0 40	11 29	24 5	5 20	15 59	3 26	11 29 41	19 22	
16	1 33	12 25	25 1	6 13	16 55	4 37	0 0 55	20 21	
20	2 27	13 21	25 58	7 7	17 52	5 49	2 8	21 19	
24	3 20	14 17	26 54	8 0	18 50	7 1	3 22	22 17	
28	4 13	15 13	27 50	8 53	19 47	8 13	4 35	23 15	
32	3 5 7	4 16 10	5 28 47	7 9 47	8 20 45	10 9 25	0 5 47	1 24 13	
36	6 0	17 6	5 29 43	10 40	21 43	10 38	6 59	25 10	
40	6 53	18 2	6 0 39	11 33	22 41	11 52	8 11	26 7	
44	7 47	18 59	1 35	12 27	23 39	13 5	9 23	27 4	
48	8 40	19 55	2 31	13 20	24 38	14 19	10 34	28 1	
52	9 34	20 52	3 27	14 14	25 37	15 33	11 45	28 58	
56	10 28	21 49	4 23	15 7	26 36	16 47	12 56	1 29 55	
	2h	5h	8h	11h	14h	17h	20h	23h	
0	3 11 21	4 22 45	6 5 19	7 16 1	8 27 36	10 18 1	0 14 6	2 0 51	
4	12 15	23 42	6 15	16 54	28 36	19 16	15 15	1 47	
8	13 9	24 39	7 11	17 47	8 29 36	20 31	16 25	2 43	
12	14 2	25 36	8 6	18 40	9 0 36	21 46	17 34	3 38	
16	14 56	26 33	9 2	19 34	1 37	23 2	18 43	4 34	
20	15 50	27 30	9 57	20 27	2 38	24 17	19 51	5 29	
24	16 44	28 26	10 53	21 21	3 39	25 33	20 59	6 24	
28	17 38	4 29 24	11 48	22 14	4 41	26 49	22 7	7 19	
32	3 18 32	5 0 21	6 12 43	7 23 8	9 5 43	10 28 5	0 23 14	2 8 14	
36	19 26	1 18	13 38	24 1	6 45	10 29 21	24 21	9 9	
40	20 20	2 15	14 33	24 55	7 47	11 0 38	25 28	10 4	
44	21 15	3 12	15 28	25 49	8 50	1 54	26 34	10 58	
48	22 9	4 9	16 23	26 43	9 53	3 10	27 39	11 53	
52	23 4	5 6	17 18	27 37	10 57	4 27	28 45	12 47	
56	23 58	6 3	18 13	28 31	12 1	5 43	0 29 50	13 41	
60	3 24 53	5 7 0	6 19 7	7 29 25	9 13 5	11 7 0	1 0 55	2 14 35	

Proportional Parts

Variation in 4 mins. :	0°—54'	0°—56'	0°—57'	0°—59'	1°—0'	1°—2'	1°—3'	1°—5'
Variation in 3 mins.	40'	42'	43'	44'	45'	46'	47'	49'
" " 2 mins.	27	28	29	30	30	31	32	33
" " 1 min.	14	14	14	15	15	16	16	16

Ascendant for Latitude 19° 0' North

(For BOMBAY 18°N58', Ahmadnagar & Jagdalpur 19°N5', etc.)

Minute	SIDEREAL TIME																	
	0h			3h			6h			9h			12h			15h			18h			21h		
	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'
0	2	14	48	3	25	1	5	7	0	6	18	59	7	29	12	9	12	53	11	7	0	1	1	7
4		15	42		25	55		7	57		19	54	8	0	6		13	58		8	17		2	11
8		16	36		26	50		8	54		20	48		1	0		15	3		9	34		3	15
12		17	30		27	45		9	51		21	42		1	54		16	9		10	51		4	19
16		18	24		28	39		10	48		22	36		2	49		17	15		12	7		5	22
20		19	17	3	29	34		11	44		23	31		3	43		18	21		13	24		6	25
24		20	11	4	0	29		12	41		24	25		4	38		19	28		14	41		7	28
28		21	4		1	24		13	38		25	19		5	33		20	35		15	57		8	30
32	2	21	58	4	2	19	5	14	35	6	26	13	8	6	28	9	21	42	11	17	13	1	9	32
36		22	51		3	14		15	32		27	6		7	23		22	50		18	30		10	34
40		23	45		4	9		16	28		28	0		8	18		23	58		19	46		11	35
44		24	38		5	5		17	25		28	54		9	13		25	7		21	2		12	36
48		25	32		6	0		18	22	6	29	48		10	9		26	16		22	18		13	37
52		26	25		6	55		19	19	7	0	41		11	4		27	25		23	33		14	37
56		27	18		7	51		20	15		1	35		12	0		28	35		24	48		15	37
	1h			4h			7h			10h			13h			16h			19h			22h		
0	2	28	11	4	8	46	5	21	12	7	2	29	8	12	56	9	29	45	11	26	3	1	16	37
4		29	5		9	42		22	8		3	22		13	52	10	0	55		27	18		17	37
8	2	29	58		10	38		23	5		4	16		14	49		2	6		28	33		18	36
12	3	0	51		11	34		24	1		5	9		15	45		3	17	11	29	47		19	35
16		1	44		12	30		24	58		6	2		16	42		4	29	0	1	1		20	34
20		2	38		13	26		25	54		6	56		17	39		5	41		2	15		21	32
24		3	31		14	22		26	50		7	49		18	36		6	53		3	29		22	30
28		4	24		15	18		27	46		8	42		19	34		8	5		4	42		23	28
32	3	5	18	4	16	14	5	28	42	7	9	36	8	20	32	10	9	18	0	5	55	1	24	26
36		6	11		17	10	5	29	38		10	29		21	30		10	31		7	7		25	24
40		7	4		18	6	6	0	34		11	22		22	28		11	45		8	19		26	21
44		7	58		19	2		1	30		12	16		23	26		12	59		9	31		27	18
48		8	51		19	59		2	26		13	9		24	25		14	13		10	43		28	15
52		9	44		20	55		3	22		14	2		25	24		15	27		11	54	1	29	11
56		10	38		21	52		4	18		14	55		26	23		16	42		13	5	2	0	8
	2h			5h			8h			11h			14h			17h			20h			23h		
0	3	11	31	4	22	48	6	5	14	7	15	49	8	27	23	10	17	56	0	14	15	2	1	4
4		12	25		23	45		6	9		16	42		28	23		19	12		15	25		2	0
8		13	19		24	41		7	5		17	35	8	29	23		20	27		16	35		2	56
12		14	12		25	38		8	0		18	28	9	0	23		21	42		17	44		3	51
16		15	6		26	35		8	55		19	22		1	24		22	58		18	53		4	47
20		16	0		27	32		9	51		20	15		2	25		24	14		20	2		5	42
24		16	54		28	28		10	46		21	9		3	26		25	30		21	10		6	37
28		17	47	4	29	25		11	41		22	2		4	28		26	47		22	18		7	32
32	3	18	41	5	0	22	6	12	36	7	22	56	9	5	30	10	28	3	0	23	25	2	8	27
36		19	35		1	19		13	31		23	49		6	32	10	29	19		24	32		9	22
40		20	29		2	16		14	26		24	43		7	35	11	0	36		25	39		10	17
44		21	24		3	12		15	21		25	36		8	38		1	53		26	45		11	11
48		22	18		4	9		16	15		26	30		9	41		3	9		27	51		12	6
52		23	12		5	6		17	10		27	24		10	45		4	26	0	28	57		13	0
56		24	6		6	3		18	5		28	18		11	49		5	43	1	0	2		13	54
60	3	25	1	5	7	0	6	18	59	7	29	12	9	12	53	11	7	0	1	1	7	2	14	48

Proportional Parts

Variation in 4 mins. :	1°—6'	1°—8'	1°—9'	1°—11'	1°—12'	1°—14'	1°—15'	1°—17'
Variation in 3 mins.	49'	51'	52'	53'	54'	55'	56'	58'
" " 2 mins.	33	34	35	36	36	37	38	39
" " 1 min.	17	17	17	18	18	19	19	19

Ascendant for Latitude 19° 30' North

(For all places in or near 19°N30 latitude)

Minute	SIDEREAL TIME																	
	0h		3h		6h		9h		12h		15h		18h		21h	
	s ° '		s ° '		s ° '		s ° '		s ° '		s ° '		s ° '		s ° '	
0	2 15 1		3 25 10		5 7 0		6 18 51		7 28 59		9 12 40		11 7 0		1 1 19	
4	15 55		26 4		7 57		19 45		7 29 53		13 45		8 17		2 24	
8	16 49		26 58		8 54		20 39		8 0 47		14 51		9 34		3 28	
12	17 43		27 53		9 50		21 33		1 41		15 57		10 51		4 32	
16	18 37		28 47		10 47		22 27		2 36		17 3		12 8		5 35	
20	19 30		3 29 42		11 43		23 22		3 30		18 9		13 26		6 38	
24	20 24		4 0 37		12 40		24 15		4 25		19 16		14 43		7 41	
28	21 17		1 31		13 37		25 9		5 20		20 23		16 0		8 43	
32	2 22 11		4 2 26		5 14 33		6 26 3		8 6 14		9 21 31		11 17 17		1 9 45	
36	23 4		3 21		15 30		26 56		7 9		22 39		18 34		10 48	
40	23 58		4 16		16 26		27 50		8 4		23 47		19 50		11 49	
44	24 51		5 11		17 23		28 44		8 59		24 56		21 7		12 49	
48	25 44		6 6		18 20		6 29 38		9 55		26 5		22 23		13 50	
52	26 37		7 1		19 16		7 0 31		10 50		27 15		23 38		14 51	
56	27 30		7 57		20 12		1 25		11 46		28 25		24 53		15 51	
	1h		4h		7h		10h		13h		16h		19h		22h	
0	2 28 23		4 8 52		5 21 9		7 2 18		8 12 44		9 29 35		11 26 9		1 16 51	
4	2 29 17		9 48		22 5		3 11		13 38		10 0 45		27 24		17 51	
8	3 0 10		10 44		23 1		4 5		14 35		1 56		28 39		18 50	
12	1 3		11 39		23 57		4 58		15 31		3 8		11 29 54		19 49	
16	1 56		12 35		24 54		5 51		16 28		4 20		0 1 8		20 48	
20	2 50		13 31		25 50		6 45		17 25		5 32		2 22		21 46	
24	3 43		14 27		26 46		7 38		18 22		6 44		3 36		22 44	
28	4 36		15 22		27 41		8 31		19 20		7 56		4 49		23 42	
32	3 5 29		4 16 18		5 28 37		7 9 24		8 20 18		10 9 10		0 6 2		1 24 40	
36	6 22		17 14		5 29 33		10 17		21 16		10 24		7 15		25 38	
40	7 15		18 10		6 0 29		11 10		22 14		11 38		8 28		26 35	
44	8 9		19 6		1 25		12 4		23 12		12 52		9 40		27 32	
48	9 2		20 3		2 21		12 57		24 11		14 6		10 52		28 29	
52	9 55		20 59		3 16		13 50		25 10		15 21		12 3		1 29 25	
56	10 48		21 55		4 12		14 43		26 9		16 36		13 14		2 0 22	
	2h		5h		8h		11h		14h		17h		20h		23h	
0	3 11 41		4 22 51		6 5 8		7 15 37		8 27 9		10 17 51		0 14 25		2 1 18	
4	12 35		23 48		6 3		16 30		28 9		19 6		15 35		2 14	
8	13 29		24 44		6 59		17 23		8 29 9		20 22		16 45		3 9	
12	14 22		25 41		7 54		18 16		9 0 9		21 38		17 55		4 5	
16	15 16		26 37		8 48		19 10		1 10		22 54		19 4		5 1	
20	16 10		27 34		9 44		20 3		2 11		24 10		20 13		5 56	
24	17 3		28 30		10 39		20 56		3 12		25 27		21 21		6 51	
28	17 56		4 29 27		11 34		21 49		4 14		26 43		22 29		7 46	
32	3 18 50		5 0 23		6 12 29		7 22 43		9 5 16		10 28 0		0 23 36		2 8 41	
36	19 44		1 20		13 23		23 36		6 19		10 29 17		24 44		9 36	
40	20 38		2 17		14 18		24 30		7 22		11 0 34		25 51		10 30	
44	21 33		3 13		15 13		25 23		8 25		1 51		26 57		11 24	
48	22 27		4 10		16 7		26 17		9 28		3 8		28 3		12 19	
52	23 21		5 7		17 2		27 11		10 32		4 25		0 29 9		13 18	
56	24 15		6 3		17 57		28 5		11 36		5 43		1 0 14		14 7	
60	3 25 10		5 7 0		6 18 51		7 28 59		9 12 40		11 7 0		1 1 19		2 15 1	

Proportional Parts

Variation in 4 mins. :	0°—53'	0°—55'	0°—56'	0°—58'	1°—0'	1°—1'	1°—3'	1°—5'
Variation in 3 mins.	40'	41'	42'	43'	45'	46'	47'	49'
" " 2 mins.	27	28	28	29	30	31	32	33
" " 1 min.	13	14	14	15	15	15	16	16

Ascendant for Latitude 20° 0' North

(For Puri 19°N48', Aurangabad 19°N53', Nasik 20°N2', etc.)

Minute	SIDEREAL TIME																	
	0h			3h			6h			9h			12h			15h			18h			21h		
	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'
0	2	15	14	3	25	18	5	7	0	6	18	42	7	28	46	9	12	28	11	7	0	1	1	32
4		16	8		26	12		7	57		19	36	7	29	40		13	33		8	18		2	46
8		17	2		27	6		8	53		20	30	8	0	34		14	39		9	35		3	41
12		17	56		28	1		9	49		21	24		1	28		15	45		10	53		4	45
16		18	49		28	55		10	46		22	18		2	22		16	51		12	10		5	48
20		19	43	3	29	50		11	42		23	12		3	16		17	58		13	28		6	51
24		20	36	4	0	44		12	39		24	6		4	11		19	5		14	45		7	54
28		21	30		1	39		13	35		25	0		5	6		20	12		16	3		8	57
32	2	22	23	4	2	33	5	14	32	6	25	53	8	6	0	9	21	20	11	17	20	1	9	59
36		23	17		3	28		15	28		26	47		6	55		22	28		18	37		11	1
40		24	10		4	23		16	24		27	41		7	50		23	36		19	54		12	2
44		25	3		5	18		17	21		28	34		8	46		24	45		21	10		13	3
48		25	56		6	13		18	17	6	29	27		9	41		25	55		22	27		14	4
52		26	49		7	8		19	13	7	0	21		10	37		27	4		23	43		15	5
56		27	42		8	3		20	9		1	14		11	33		28	14		24	59		16	5
	1h			4h			7h			10h			13h			16h			19h			22h		
0	2	28	36	4	8	58	5	21	6	7	2	8	8	12	29	9	29	25	11	26	15	1	17	5
4	2	29	29		9	54		22	2		3	1		13	25	10	0	36		27	30		18	4
8	3	0	22		10	49		22	58		3	54		14	21		1	47	11	28	45		19	4
12		1	15		11	44		23	54		4	47		15	18		2	59	0	0	1		20	3
16		2	8		12	40		24	50		5	40		16	14		4	11		1	15		21	1
20		3	1		13	36		25	46		6	34		17	11		5	23		2	30		22	0
24		3	54		14	31		26	41		7	27		18	9		6	36		3	44		22	58
28		4	47		15	27		27	37		8	20		19	6		7	49		4	57		23	56
32	3	5	40	4	16	23	5	28	33	7	9	13	8	20	4	10	9	3	0	6	11	1	24	54
36		6	33		17	19	5	29	29		10	6		21	2		10	16		7	24		25	51
40		7	26		18	14	6	0	24		10	59		22	0		11	30		8	37		26	49
44		8	19		19	10		1	20		11	52		22	59		12	45		9	49		27	46
48		9	13		20	6		2	15		12	45		23	57		14	0		11	1		28	42
52		10	6		21	2		3	11		13	38		24	56		15	15		12	13	1	29	39
56		10	59		21	58		4	6		14	31		25	56		16	30		13	24	2	0	35
	2h			5h			8h			11h			14h			17h			20h			23h		
0	3	11	52	4	22	54	6	5	2	7	15	24	8	26	55	10	17	45	0	14	35	2	1	31
4		12	46		23	51		5	57		16	18		27	55		19	1		15	46		2	27
8		13	39		24	47		6	52		17	11		28	55		20	17		16	56		3	23
12		14	33		25	43		7	47		18	4	8	29	56		21	33		18	5		4	19
16		15	26		26	39		8	42		18	57	9	0	57		22	50		19	15		5	14
20		16	19		27	36		9	37		19	50		1	58		24	6		20	24		6	10
24		17	13		28	32		10	32		20	43		2	59		25	23		21	32		7	5
28		18	7	4	29	28		11	27		21	37		4	1		26	40		22	40		8	0
32	3	19	0	5	0	25	6	12	21	7	22	30	9	5	3	10	27	57	0	23	48	2	8	54
36		19	54		1	21		13	16		23	24		6	6	10	29	15		24	56		8	49
40		20	48		2	18		14	10		24	17		7	9	11	0	32		26	2		10	44
44		21	42		3	14		15	4		25	11		8	12		1	50		27	9		11	38
48		22	36		4	11		15	59		26	4		9	15		3	7		28	15		12	32
52		23	30		5	7		16	54		26	58		10	19		4	25	0	29	21		13	26
56		24	24		6	3		17	48		27	52		11	24		5	42	1	0	27		14	20
60	3	25	18	5	7	0	6	18	42	7	28	46	9	12	28	11	7	0	1	1	32	2	15	14

Proportional Parts

Variation in 4 mins. :	1°—6'	1°—8'	1°—9'	1°—11'	1°—12'	1°—14'	1°—15'	1°—17'
Variation in 3 mins.	49'	51'	52'	53'	54'	55'	56'	58'
" " 2 mins.	33	34	35	36	36	37	38	38
" " 1 min.	17	17	17	18	18	19	19	19

Ascendant for Latitude 20° 30' North

(For Cuttack 20°N29', Akola & Diu 20°N42', etc.)

Minute	SIDEREAL TIME																	
	0h		3h		6h		9h		12h		15h		18h		21h			
	s	° '	s	° '	s	° '	s	° '	s	° '	s	° '	s	° '	s	° '		
0	2	15 27	3	25 26	5	7 0	6	18 33	7	28 33	9	12 15	11	7 0	1	1 44		
4		16 21		26 20		7 56		19 27	7	29 27		13 20		8 18		2 49		
8		17 15		27 14		8 52		20 21	8	0 21		14 26		9 36		3 54		
12		18 9		28 9		9 48		21 15		1 14		15 32		10 54		4 58		
16		19 2		29 3		10 45		22 9		2 8		16 38		12 12		6 1		
20		19 56	3	29 58		11 41		23 3		3 2		17 45		13 30		7 4		
24		20 49	4	0 52		12 37		23 57		3 57		18 52		14 48		8 8		
28		21 43		1 46		13 33		24 51		4 52		20 0		16 6		9 11		
32	2	22 36	4	2 40	5	14 30	6	25 44	8	5 46	9	21 8	11	17 23	1	10 13		
36		23 29		3 35		15 26		26 38		6 41		22 16		18 40		11 15		
40		24 22		4 30		16 22		27 31		7 36		23 24		19 57		12 16		
44		25 15		5 25		17 18		28 24		8 32		24 33		21 14		13 17		
48		26 8		6 19		18 14	6	29 17		9 27		25 43		22 32		14 18		
52		27 1		7 14		19 10	7	0 11		10 23		26 53		23 48		15 19		
56		27 54		8 9		20 6		1 4		11 19		28 4		25 4		16 19		
	1h		4h		7h		10h		13h		16h		19h		22h			
0	2	28 48	4	9 4	5	21 2	7	1 58	8	12 15	9	29 15	11	26 20	1	17 19		
4	2	29 41		10 0		21 58		2 51		13 11	10	0 26		27 36		18 18		
8	3	0 34		10 55		22 54		3 44		14 7		1 37	11	28 51		19 18		
12		1 27		11 50		23 50		4 37		15 4		2 49	0	0 7		20 17		
16		2 20		12 45		24 46		5 30		16 0		4 2		1 22		21 15		
20		3 13		13 41		25 42		6 23		16 57		5 14		2 37		22 14		
24		4 5		14 36		26 37		7 16		17 55		6 27		3 51		23 12		
28		4 58		15 32		27 33		8 8		18 52		7 40		5 5		24 10		
32	3	5 51	4	16 27	5	28 28	7	9 1	8	19 50	10	8 54	0	6 19	1	25 8		
36		6 44		17 23	5	29 24		9 54		20 48		10 8		7 33		26 5		
40		7 37		18 18	6	0 19		10 47		21 46		11 23		8 46		27 3		
44		8 30		19 14		1 15		11 40		22 45		12 38		9 58		28 0		
48		9 24		20 10		2 10		12 33		23 43		13 53		11 10		28 57		
52		10 17		21 5		3 6		13 26		24 42		15 8		12 22	1	29 53		
56		11 10		22 1		4 1		14 19		25 42		16 24		13 34	2	0 49		
	2h		5h		8h		11h		14h		17h		20h		23h			
0	3	12 3	4	22 57	6	4 56	7	15 12	8	26 41	10	17 39	0	14 45	2	1 45		
4		12 56		23 53		5 51		16 6		27 41		18 55		15 56		2 41		
8		13 49		24 49		6 46		16 59		28 41		20 12		17 6		3 37		
12		14 43		25 45		7 40		17 52	8	29 42		21 29		18 16		4 33		
16		15 36		26 41		8 35		18 45	9	0 43		22 46		19 26		5 28		
20		16 29		27 38		9 30		19 38		1 44		24 3		20 35		6 23		
24		17 23		28 34		10 25		20 31		2 45		25 20		21 43		7 18		
28		18 16	4	29 30		11 20		21 24		3 47		26 37		22 52		8 13		
32	3	19 9	5	0 27	6	12 14	7	22 17	9	4 50	10	27 54	0	24 0	2	9 8		
36		20 [illegible]		1 23		13 8		23 11		5 53	10	29 12		25 8		10 3		
40		[illegible] 57		2 19		14 2		24 4		6 56	11	0 30		26 14		10 57		
44		[illegible] 51		3 15		14 56		24 58		7 59		1 48		27 21		11 51		
48		22 45		4 11		15 51		25 51		9 2		3 6		28 27		12 45		
52		23 38		5 7		16 46		26 45		10 6		4 24	0	29 33		13 39		
56		24 32		6 3		17 40		27 39		11 11		5 42	1	0 39		14 33		
60	3	25 26	5	7 0	6	18 33	7	28 33	9	12 15	11	7 0	1	1 44	2	15 27		

Proportional Parts

Variation in 4 mins. :	0°—53'	0°—55'	0°—56'	0°—58'	1°—0'	1°—1'	1°—3'	1°—5'	
Variation in 3 mins.	40'	41'	42'	43'	45'	46'	47'	49'	
" 2 mins.	27	28	28	29	30	31	32	33	
" 1 min.	13	14	14	15	15	15	16	16	

Ascendant for Latitude 21° 0' North

(For NAGPUR 21°N 9', Durg 21°N11', Surat 21°N12', etc.)

Minute	SIDEREAL TIME																	
	0h			3h			6h			9h			12h			15h			18h			21h		
	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'
0	2	15	41	3	25	35	5	7	0	6	18	25	7	28	19	9	12	3	11	7	0	1	1	57
4		16	35		26	29		7	56		19	19	7	29	13		13	8		8	18		3	2
8		17	29		27	23		8	52		20	13	8	0	7		14	14		9	37		4	7
12		18	22		28	17		9	48		21	7		1	1		15	20		10	55		5	11
16		19	16	3	29	11		10	44		22	0		1	55		16	26		12	14		6	15
20		20	9	4	0	5		11	40		22	54		2	49		17	33		13	32		7	18
24		21	2		0	59		12	36		23	47		3	44		18	40		14	50		8	21
28		21	56		1	53		13	32		24	41		4	38		19	48		16	8		9	24
32	2	22	49	4	2	48	5	14	28	6	25	34	8	5	33	9	20	56	11	17	26	1	10	26
36		23	42		3	42		15	24		26	28		6	28		22	5		18	44		11	28
40		24	35		4	37		16	20		27	21		7	23		23	14		20	1		12	30
44		25	28		5	31		17	16		28	14		8	18		24	23		21	19		13	31
48		26	21		6	26		18	12	6	29	7		9	13		25	33		22	36		14	32
52		27	14		7	21		19	8	7	0	0		10	9		26	43		23	53		15	32
56		28	7		8	16		20	4		0	54		11	5		27	54		25	10		16	33
	1h			4h			7h			10h			13h			16h			19h			22h		
0	2	29	0	4	9	10	5	21	0	7	1	47	8	12	1	9	29	5	11	26	26	1	17	33
4	2	29	53		10	5		21	56		2	40		12	57	10	0	16		27	42		18	32
8	3	0	46		11	0		22	51		3	33		13	53		1	28	11	28	58		19	32
12		1	38		11	55		23	46		4	26		14	50		2	40	0	0	14		20	31
16		2	31		12	51		24	42		5	19		15	46		3	53		1	30		21	30
20		3	24		13	46		25	37		6	11		16	43		5	5		2	45		22	28
24		4	17		14	41		26	33		7	4		17	41		6	19		3	59		23	26
28		5	10		15	36		27	28		7	57		18	38		7	32		5	14		24	24
32	3	6	3	4	16	32	5	28	24	7	8	50	8	19	36	10	8	46	0	6	28	1	25	22
36		6	56		17	27	5	29	19		9	43		20	34		10	1		7	41		26	19
40		7	49		18	23	6	0	14		10	36		21	32		11	16		8	55		27	17
44		8	42		19	18		1	9		11	29		22	30		12	31		10	8		28	14
48		9	35		20	14		2	5		12	22		23	29		13	46		11	20	1	29	10
52		10	27		21	9		3	0		13	14		24	28		15	2		12	32	2	0	7
56		11	20		22	5		3	55		14	7		25	28		16	18		13	44		1	3
	2h			5h			8h			11h			14h			17h			20h			23h		
0	3	12	13	4	23	0	6	4	50	7	15	0	8	26	27	10	17	34	0	14	55	2	1	59
4		13	6		23	56		5	44		15	53		27	27		18	50		16	6		2	55
8		14	0		24	52		6	39		16	46		28	28		20	7		17	17		3	51
12		14	53		25	48		7	34		17	39	8	29	28		21	24		18	27		4	47
16		15	46		26	44		8	29		18	32	9	0	29		22	41		19	37		5	42
20		16	39		27	40		9	23		19	25		1	30		23	59		20	46		6	37
24		17	33		28	36		10	18		20	18		2	32		25	16		21	55		7	32
28		18	26	4	29	32		11	12		21	11		3	34		26	54		23	4		8	27
32	3	19	19	5	0	28	6	12	7	7	22	4	9	4	36	10	27	52	0	24	12	2	9	22
36		20	13		1	24		13	1		22	58		5	39	10	29	10		25	20		10	16
40		21	6		2	20		13	55		23	51		6	42	11	0	28		26	27		11	11
44		22	0		3	16		14	49		24	44		7	45		1	46		27	34		12	5
48		22	53		4	12		15	43		25	38		8	49		3	5		28	40		12	59
52		23	47		5	8		16	37		26	32		9	53		4	23	0	29	46		13	53
56		24	41		6	4		17	31		27	25		10	58		5	42	1	0	52		14	47
60	3	25	35	5	7	0	6	18	25	7	28	19	9	12	3	11	7	0	1	1	57	2	15	41

Proportional Parts

Variation in 4 mins.	1°—6'	1°—8'	1°—10'	1°—11'	1°—13'	1°—14'	1°—16'	1°—18'
Variation in 3 mins.	49'	51'	52'	53'	55'	55'	57'	58'
" " 2 mins.	33	34	35	36	37	37	38	39
" " 1 min.	17	17	18	18	18	19	19	20

Ascendant for Latitude 21°30' North

(For Balasore 21°N30', Sambalpur 21°N28', Broach 21°N41', etc.)

Minute	SIDEREAL TIME																	
	0h		3h		6h		9h		12h		15h		18h		21h	
	s ° '		s ° '		s ° '		s ° '		s ° '		s ° '		s ° '		s ° '	
0	2 15	54	3 25	43	5 7	0	6 18	17	7 28	6	9 11	50	11 7	0	1 2	10
4	16	48	26	37	7	56	19	11	29	0	12	55	8	18	3	15
8	17	42	27	31	8	52	20	4	7 29	53	14	1	9	37	4	20
12	18	35	28	25	9	47	20	58	8 0	46	15	7	10	56	5	24
16	19	29	3 29	19	10	43	21	51	1	41	16	13	12	15	6	28
20	20	22	4 0	12	11	39	22	45	2	35	17	20	13	34	7	32
24	21	15	1	6	12	35	23	38	3	30	18	28	14	52	8	35
28	22	9	2	0	13	31	24	31	4	24	19	36	16	11	9	38
32	2 23	2	4 2	55	5 14	26	6 25	24	8 5	19	9 20	44	11 17	29	1 10	40
36	23	54	3	49	15	22	26	18	6	14	21	53	18	47	11	42
40	24	47	4	44	16	18	27	11	7	9	23	2	20	5	12	44
44	25	40	5	38	17	14	28	4	8	4	24	11	21	23	13	45
48	26	33	6	32	18	10	28	57	8	59	25	22	22	41	14	46
52	27	26	7	27	19	5	6 29	50	9	55	26	32	23	58	15	46
56	28	19	8	22	20	1	7 0	43	10	51	27	43	25	15	16	47
	1h		4h		7h		10h		13h		16h		19h		22h	
0	2 29	12	4 9	16	5 20	56	7 1	36	8 11	47	9 28	54	11 26	32	1 17	47
4	3 0	5	10	11	21	52	2	29	12	43	10 0	6	27	48	18	46
8	0	58	11	6	22	47	3	22	13	39	1	18	11 29	5	19	46
12	1	50	12	1	23	43	4	15	14	36	2	30	0 0	21	20	45
16	2	43	12	56	24	38	5	8	15	32	3	43	1	37	21	44
20	3	36	13	51	25	33	6	0	16	29	4	56	2	52	22	42
24	4	29	14	46	26	29	6	53	17	27	6	10	4	7	23	40
28	5	22	15	41	27	24	7	46	18	24	7	23	5	22	24	38
32	3 6	15	4 16	36	5 28	19	7 8	39	8 19	22	10 8	38	0 6	36	1 25	36
36	7	7	17	31	5 29	14	9	31	20	20	9	53	7	50	26	33
40	8	0	18	27	6 0	9	10	24	21	18	11	8	9	4	27	31
44	8	53	19	22	1	4	11	17	22	16	12	23	10	17	28	28
48	9	46	20	18	1	59	12	10	23	15	13	39	11	30	1 29	24
52	10	38	21	12	2	54	13	2	24	14	14	55	12	42	2 0	21
56	11	31	22	8	3	49	13	55	25	14	16	11	13	54	1	17
	2h		5h		8h		11h		14h		17h		20h		23h	
0	3 12	24	4 23	4	6 4	44	7 14	48	8 26	13	10 17	27	0 15	6	2 2	13
4	13	17	23	59	5	38	15	41	27	13	18	44	16	17	3	9
8	14	10	24	55	6	33	16	34	28	14	20	2	17	28	4	5
12	15	3	25	50	7	28	17	27	8 29	14	21	19	18	38	5	1
16	15	56	26	46	8	22	18	19	9 0	15	22	36	19	48	5	56
20	16	49	27	42	9	16	19	12	1	16	23	55	20	58	6	51
24	17	42	28	38	10	11	20	5	2	18	25	12	22	7	7	46
28	18	35	4 29	33	11	5	20	58	3	20	26	31	23	16	8	41
32	3 19	28	5 0	29	6 12	0	7 21	51	9 4	22	10 27	49	0 24	24	2 9	36
36	20	22	1	25	12	54	22	45	5	25	10 29	7	25	32	10	30
40	21	15	2	21	13	47	23	38	6	29	11 0	26	26	39	11	25
44	22	9	3	17	14	41	24	31	7	32	1	45	27	47	12	19
48	23	2	4	13	15	35	25	25	8	36	3	4	28	53	13	13
52	23	56	5	8	16	29	26	19	9	40	4	23	0 29	59	14	7
56	24	50	6	4	17	23	27	12	10	45	5	42	1 1	5	15	1
60	3 25	43	5 7	0	6 18	17	7 28	6	9 11	50	11 7	0	1 2	10	2 15	54

Proportional Parts

Variation in 4 mins. :	0°—53'	0°—55'	0°—56'	0°—58'	1°—0'	1°—1'	1°—3'	1°—5'
Variation in 3 mins.	40'	41'	42'	43'	45'	46'	47'	49'
" " 2 mins.	27	28	28	29	30	31	32	33
" " 1 min.	13	14	14	15	15	15	16	16

Ascendant for Latitude 22°0' North

(For Mandalay 21°N59', Bilaspur 22°N5', etc.)

Minute	SIDEREAL TIME																	
	0h			3h			6h			9h			12h			15h			18h			21h		
	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'
0	2	16	8	3	25	52	5	7	0	6	18	8	2	27	52	9	11	36	11	7	0	1	2	24
4		17	2		26	45		7	56		19	2		28	46		12	42		8	19		3	29
8		17	55		27	39		8	51		19	55	7	29	40		13	48		9	39		4	33
12		18	49		28	33		9	47		20	49	8	0	33		14	54		10	58		5	38
16		19	42	3	29	26		10	43		21	42		1	27		16	1		12	17		6	42
20		20	35	4	0	20		11	38		22	35		2	22		17	8		13	36		7	45
24		21	28		1	14		12	34		23	28		3	16		18	16		14	55		8	48
28		22	21		2	8		13	29		24	22		4	10		19	24		16	14		9	51
32	2	23	14	4	3	2	5	14	25	6	25	15	8	5	5	9	20	32	11	17	33	1	10	54
36		24	7		3	56		15	21		26	8		6	0		21	41		18	51		11	56
40		25	0		4	50		16	16		27	1		6	55		22	51		20	10		12	58
44		25	53		5	45		17	12		27	54		7	50		24	0		21	28		13	59
48		26	46		6	39		18	7		28	47		8	45		25	11		22	46		15	0
52		27	39		7	33		19	2	6	29	40		9	41		26	21		24	3		16	1
56		28	32		8	28		19	58	7	0	33		10	36		27	32		25	21		17	1
	1h			4h			7h			10h			13h			16h			19h			22h		
0	2	29	24	4	9	22	5	20	53	7	1	25	8	11	32	9	28	44	11	26	38	1	18	1
4	3	0	17		10	17		21	48		2	18		12	28	9	29	56		27	55		19	1
8		1	10		11	12		22	44		3	11		13	25	10	1	8	11	29	12		20	0
12		2	2		12	6		23	39		4	4		14	21		2	21	0	0	28		20	59
16		2	55		13	1		24	34		4	56		15	18		3	34		1	44		21	58
20		3	48		13	56		25	29		5	49		16	15		4	47		3	0		22	57
24		4	40		14	51		26	24		6	42		17	12		6	1		4	15		23	55
28		5	33		15	46		27	19		7	34		18	10		7	15		5	30		24	53
32	3	6	26	4	16	41	5	28	14	7	8	27	8	19	7	10	8	30	0	6	45	1	25	50
36		7	18		17	36	5	29	9		9	20		20	5		9	45		7	59		26	48
40		8	11		18	31	6	0	4		10	12		21	3		11	0		9	13		27	45
44		9	4		19	26		0	59		11	5		22	2		12	16		10	26		28	42
48		9	56		20	21		1	54		11	58		23	1		13	32		11	40	1	29	39
52		10	49		21	16		2	48		12	50		24	0		14	48		12	52	2	0	35
56		11	42		22	12		3	43		13	43		24	59		16	5		14	5		1	32
	2h			5h			8h			11h			14h			17h			20h			23h		
0	3	12	35	4	23	7	6	4	38	7	14	36	8	25	59	10	17	22	0	15	16	2	2	28
4		13	27		24	2		5	32		15	28		26	59		18	39		16	28		3	24
8		14	20		24	58		6	27		16	21		27	59		19	57		17	39		4	19
12		15	13		25	53		7	21		17	14	8	29	0		21	14		18	49		5	15
16		16	6		26	48		8	15		18	7	9	0	1		22	32		20	0		6	10
20		16	59		27	44		9	10		19	0		1	2		23	50		21	9		7	5
24		17	52		28	39		10	4		19	53		2	4		25	9		22	19		8	0
28		18	45	4	29	35		10	58		20	46		3	6		26	27		23	28		8	55
32	3	19	35	5	0	31	6	11	52	7	21	39	9	4	9	10	27	46	0	24	36	2	9	50
36		20	32		1	26		12	46		22	32		5	12	10	29	5		25	44		10	44
40		21	25		2	22		13	40		23	25		6	15	11	0	24		26	52		11	38
44		22	18		3	17		14	34		24	18		7	18		1	43		27	59		12	33
48		23	11		4	13		15	27		25	11		8	22		3	2	0	29	6		13	27
52		24	5		5	9		16	21		26	5		9	27		4	21	1	0	12		14	20
56		24	58		6	4		17	15		26	58		10	31		5	41		1	18		15	14
60	3	25	52	5	7	0	6	18	8	7	27	52	9	11	36	11	7	0	1	2	24	2	16	8

Proportional Parts

Variation in 4 mins. :	1°—6'	1°—8'	1°—9'	1°—11'	1°—13'	1°—15'	1°—17'	1°—19'
Variation in 3 mins.	49'	51'	52'	53'	55'	56'	58'	59'
" " 2 mins.	33	34	35	36	37	38	39	40
" " 1 min.	17	17	17	18	18	19	19	20

Ascendant for CALCUTTA Latitude 22°35' North

(Also for Kharagpur 22°N30', Indore 22°N43', Jamnagar 22°N27' etc.)

Minute	SIDEREAL TIME							
	0h	3h	6h	9h	12h	15h	18h	21h
	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '
0	2 16 24	3 26 2	5 7 0	6 17 58	7 27 36	9 11 20	11 7 0	1 2 40
4	17 18	26 55	7 55	18 52	28 30	12 26	8 20	3 45
8	18 11	27 48	8 50	19 45	7 29 24	13 32	9 40	4 49
12	19 4	28 42	9 46	20 39	8 0 17	14 39	10 59	5 54
16	19 58	3 29 35	10 42	21 32	1 11	15 46	12 19	6 58
20	20 51	4 0 29	11 37	22 25	2 6	16 53	13 38	8 1
24	21 44	1 23	12 32	23 18	3 0	18 1	14 58	9 5
28	22 37	2 17	13 28	24 11	3 54	19 9	16 17	10 8
32	2 23 29	4 3 11	5 14 23	6 25 3	8 4 49	9 20 18	11 17 36	1 11 10
36	24 22	4 4	15 19	25 56	5 44	21 27	18 56	12 12
40	25 15	4 58	16 14	26 49	6 38	22 37	20 15	13 14
44	26 8	5 53	17 9	27 42	7 33	23 47	21 33	14 16
48	27 1	6 47	28 4	28 35	8 29	24 58	22 52	15 17
52	27 54	7 41	18 59	6 29 28	9 24	26 8	24 9	16 17
56	28 46	8 35	19 55	7 0 21	10 20	27 19	25 27	17 18
	1h	4h	7h	10h	13h	16h	19h	22h
0	2 29 39	4 9 29	5 20 50	7 1 13	8 11 15	9 28 31	11 26 45	1 18 18
4	3 0 32	10 23	21 45	2 6	12 11	9 29 43	28 3	19 18
8	1 24	11 18	22 40	2 58	13 8	10 0 56	11 29 20	20 17
12	2 16	12 12	23 35	3 51	14 4	2 8	0 0 37	21 16
16	3 9	13 7	24 29	4 43	15 1	3 22	1 53	22 15
20	4 2	14 2	25 24	5 36	15 58	4 36	3 9	23 14
24	4 54	14 56	26 19	6 29	16 55	5 51	4 25	24 12
28	5 46	15 51	27 14	7 21	17 53	7 5	5 40	25 10
32	3 6 39	4 16 46	5 28 9	7 8 14	8 18 50	10 8 20	0 6 55	1 26 7
36	7 31	17 41	29 4	9 6	19 48	9 35	8 9	27 5
40	8 24	18 36	5 29 58	9 59	20 46	10 51	9 24	28 2
44	9 17	19 31	6 0 53	10 51	21 45	12 7	10 38	28 59
48	10 9	20 25	1 48	11 44	22 44	13 23	11 52	1 29 56
52	11 2	21 20	2 42	12 36	23 43	14 40	13 4	2 0 52
56	11 54	22 15	3 37	13 28	24 42	15 57	14 17	1 49
	2h	5h	8h	11h	14h	17h	20h	23h
0	3 12 47	4 23 10	6 4 31	7 14 21	8 25 42	10 17 15	0 15 29	2 2 45
4	13 39	24 5	5 25	15 14	26 42	18 33	16 41	3 40
8	14 32	25 1	6 19	16 6	27 43	19 51	17 52	4 36
12	15 25	25 56	7 13	16 59	28 43	21 8	19 2	5 31
16	16 18	26 51	8 7	17 52	8 29 44	22 27	20 13	6 27
20	17 11	27 46	9 2	18 45	9 0 45	23 45	21 23	7 22
24	18 04	28 41	9 56	19 38	1 47	15 4	22 33	8 16
28	18 57	4 29 37	10 49	20 31	2 50	26 24	23 42	9 11
32	3 19 49	5 0 32	6 11 43	7 21 23	9 3 52	10 27 43	0 24 51	2 10 6
36	20 42	1 28	12 37	22 16	4 55	10 29 2	25 59	11 0
40	21 35	2 23	13 31	23 9	5 59	11 0 22	27 7	11 54
44	22 28	3 18	14 25	24 2	7 2	1 41	28 14	12 48
48	23 21	4 14	15 18	24 56	8 6	3 1	0 29 21	13 42
52	24 15	5 10	16 12	25 49	9 11	4 20	1 0 28	14 36
56	25 8	6 5	17 6	26 42	10 15	5 40	1 34	15 30
60	3 26 2	5 7 0	6 17 58	7 27 36	9 11 20	11 7 0	1 2 40	2 16 24

PROPORTIONAL PARTS

Variation in 4 mins. :	0°—53'	0°—55'	0°—57'	0°—59'	1°—0'	1°—2'	1°—4'	1°—6'
Variation in 3 mins.	40'	41'	43'	44'	45'	46'	48'	49'
" " 2 mins.	27	28	29	30	30	31	32	33
" " 1 min.	13	14	14	15	15	15	16	16

Ascendant for Latitude 23°0' North

(For Ahmedabad 23°N2', Jabalpur 23°N9', Ujjain 23°N11' etc.)

Minute	SIDEREAL TIME							
	0h	3h	6h	9h	12h	15h	18h	21h
	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '
0	2 16 35	3 26 9	5 7 0	6 17 51	7 27 25	9 11 9	11 7 0	1 2 51
4	17 29	27 2	7 55	18 44	28 18	12 15	8 20	3 56
8	18 22	27 55	8 50	19 38	7 29 12	13 21	9 40	5 1
12	19 15	28 49	9 46	20 31	8 0 6	14 28	11 0	6 5
16	20 9	3 29 42	10 41	24 24	1 0	15 35	12 20	7 10
20	21 2	4 0 36	11 36	22 17	1 54	16 43	13 40	8 13
24	21 55	1 29	12 31	23 10	2 48	17 51	15 0	9 17
28	22 48	2 23	13 27	24 3	3 42	18 59	16 20	10 20
32	2 23 40	4 3 17	5 14 22	6 24 55	8 4 37	9 20 8	11 17 39	1 11 22
36	24 33	4 10	15 17	25 48	5 32	21 17	18 59	12 24
40	25 26	5 4	16 12	26 41	6 26	22 27	20 18	13 26
44	26 19	5 58	17 7	27 34	7 21	23 37	21 37	14 28
48	27 11	6 52	18 2	28 26	8 17	24 48	22 56	15 29
52	28 4	7 46	18 57	6 29 19	9 12	25 59	24 14	16 29
56	28 56	8 40	19 52	7 0 12	10 8	27 10	25 32	17 30
	1h	4h	7h	10h	13h	16h	19h	22h
0	2 29 49	4 9 34	5 20 47	7 1 4	8 11 3	9 28 22	11 26 50	1 18 30
4	3 0 42	10 28	21 42	1 57	11 59	9 29 34	28 8	19 30
8	1 34	11 23	22 37	2 49	12 56	10 0 47	11 29 26	20 29
12	2 26	12 17	23 32	3 42	13 52	2 0	0 0 43	21 28
16	3 19	13 11	24 26	4 34	14 49	3 14	1 59	22 27
20	4 11	14 6	25 21	5 27	15 46	4 28	3 16	23 26
24	5 4	15 0	26 16	6 19	16 43	5 43	4 32	24 24
28	5 56	15 55	27 11	7 11	17 40	6 57	5 47	25 22
32	3 6 49	4 16 49	5 28 5	7 8 4	8 18 38	10 8 13	0 7 2	1 26 20
36	7 41	17 44	29 0	8 56	19 36	9 28	8 17	27 17
40	8 33	18 39	5 29 54	9 49	20 34	10 44	9 32	28 14
44	9 26	19 34	6 0 49	10 41	21 33	12 1	10 46	1 29 11
48	10 18	20 28	1 43	11 34	22 32	13 17	12 0	2 0 8
52	11 11	21 23	2 37	12 26	23 31	14 34	13 13	1 4
56	12 3	22 18	3 32	13 18	24 30	15 52	14 26	2 1
	2h	5h	8h	11h	14h	17h	20h	23h
0	3 12 56	4 23 13	6 4 26	7 14 11	8 25 30	10 17 10	0 15 38	2 2 57
4	13 48	24 8	5 20	15 4	26 30	18 28	16 50	3 52
8	14 41	25 3	6 14	15 56	27 31	19 46	18 1	4 48
12	15 34	25 58	7 8	16 49	28 31	21 4	19 12	5 43
16	16 26	26 53	8 2	17 41	8 29 32	22 23	20 23	6 39
20	17 19	27 48	8 56	18 34	9 0 33	23 42	21 33	7 34
24	18 12	28 43	9 50	19 27	1 35	25 1	22 43	8 28
28	19 5	4 29 38	10 43	20 20	2 38	26 21	23 52	9 23
32	3 19 57	5 0 33	6 11 37	7 21 12	9 3 40	10 27 40	0 25 1	2 10 18
36	20 50	1 29	12 31	22 5	4 43	10 29 0	26 9	11 12
40	21 43	2 24	13 24	22 58	5 47	11 0 20	27 17	12 6
44	22 36	3 19	14 18	23 51	6 51	1 40	28 25	13 0
48	23 29	4 14	15 11	24 45	7 55	3 0	0 29 32	13 54
52	24 22	5 10	16 5	25 38	8 59	4 20	1 0 39	14 48
56	25 16	6 5	16 58	26 31	10 4	5 40	1 45	15 42
60	3 26 9	5 7 0	6 17 51	7 27 25	9 11 9	11 7 0	1 2 51	2 16 35

Proportional Parts

Variation in 4 mins. :	1°—7'	1°—9'	1°—10'	1°—12'	1°—14'	1°—16'	1°—18'	1°—20'
Variation in 3 mins.	50'	52'	52'	54'	55'	57'	58'	60'
" " 2 mins.	34	35	35	36	37	38	39	40
" " 1 min.	17	17	18	18	19	19	20	20

Ascendant for DHAKA Latitude 23°42' North

(Also Agartala for 23°N49', Asansol 23°N42', Sagar 23°N50' etc.)

Minute	SIDEREAL TIME																	
	0h			3h			6h			9h			12h			15h			18h			21h		
	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'
0	2	16	55	3	26	21	5	7	0	6	17	39	7	27	5	9	10	50	11	7	0	1	3	10
4		17	48		27	14		7	55		18	32		27	59		11	56		8	20		4	16
8		18	41		28	7		8	50		19	25		28	52		13	2		9	41		5	21
12		19	34		29	0		9	45		20	18	7	29	46		14	9		11	2		6	25
16		20	28	3	29	53		10	40		21	11	8	0	40		15	17		12	23		7	30
20		21	20	4	0	47		11	35		22	4		1	34		16	25		13	44		8	33
24		23	13		1	40		12	30		22	57		2	28		17	33		15	4		9	37
28		23	6		2	34		13	25		23	49		3	22		18	41		16	24		10	40
32	2	23	59	4	3	27	5	14	19	6	24	42	8	4	17	9	19	50	11	17	44	1	11	42
36		24	51		4	20		15	14		25	34		5	12		20	59		19	5		12	44
40		25	44		5	14		16	9		26	27		6	6		22	9		20	24		13	47
44		26	37		6	7		17	3		27	19		7	1		23	20		21	44		14	48
48		27	29		7	1		17	58		28	12		7	57		24	31		23	3		15	49
52		28	22		7	55		18	53		29	4		8	52		25	42		24	22		16	50
56	2	29	14		8	48		19	48	6	29	57		9	47		26	54		25	40		17	50
	1h			4h			7h			10h			13h			16h			19h			22h		
0	3	0	7	4	9	42	5	20	43	7	0	49	8	10	43	9	28	7	11	26	59	1	18	50
4		0	59		10	36		21	37		1	42		11	39	9	29	19		28	18		19	50
8		1	51		11	31		22	32		2	34		12	35	10	0	32	11	29	36		20	50
12		2	44		12	25		23	26		3	26		13	32		1	46	0	0	53		21	49
16		3	36		13	19		24	21		4	19		14	28		3	0		2	10		22	48
20		4	28		14	13		25	15		5	11		15	25		4	15		3	27		23	46
24		5	20		15	7		26	10		6	3		16	23		5	30		4	44		24	45
28		6	13		16	1		27	5		6	55		17	20		6	44		6	0		25	43
32	3	7	5	4	16	55	5	27	59	7	7	47	8	18	17	10	8	0	0	7	16	1	26	40
36		7	57		17	50		28	53		8	40		19	15		9	16		8	30		27	38
40		8	49		18	45	5	29	47		9	32		20	14		10	33		9	46		28	35
44		9	41		19	39	6	0	41		10	24		21	12		11	50		11	0	1	29	32
48		10	34		20	34		1	35		11	16		22	11		13	6		12	14	2	0	28
52		11	26		21	28		2	29		12	8		23	10		14	24		13	28		1	25
56		12	18		22	23		3	24		13	0		24	10		15	42		14	41		2	21
	2h			5h			8h			11h			14h			17h			20h			23h		
0	3	13	11	4	23	17	6	4	18	7	13	58	8	25	10	10	17	1	0	15	53	2	3	17
4		14	3		24	12		5	12		14	46		26	10		18	20		17	6		4	13
8		14	56		25	7		6	5		15	38		27	10		19	38		18	18		5	8
12		15	48		26	2		6	59		16	31		28	11		20	57		19	29		6	3
16		16	41		26	57		7	53		17	23	8	29	12		22	16		20	40		6	59
20		17	33		27	51		8	46		18	16	9	0	13		23	36		21	51		7	54
24		18	26		28	46		9	40		19	9		1	16		24	55		23	1		8	48
28		19	18	4	29	41		10	33		20	1		2	18		26	16		24	10		9	43
32	3	20	11	5	0	35	6	11	26	7	20	54	9	3	20	10	27	36	0	25	19	2	10	38
36		21	3		1	30		12	20		21	47		4	23	10	28	56		26	27		11	32
40		21	56		2	25		13	13		22	40		5	27	11	0	16		27	36		12	26
44		22	49		3	20		14	7		23	33		6	30		1	37		28	43		13	20
48		23	42		4	15		15	0		24	26		7	35		2	58	0	29	51		14	14
52		24	35		5	10		15	53		25	19		8	39		4	19	1	0	58		15	8
56		25	28		6	5		16	46		26	12		9	44		5	40	1	2	4		16	1
60	3	26	21	5	7	0	6	17	39	7	27	5	9	10	50	11	7	0	1	3	10	2	16	55

Proportional Parts

Variation in 4 mins. :	0°—52'	0°—54'	0°—56'	0°—58'	1°—0'	1°—2'	1°—4'	1°—6'
Variation in 3 mins.	39'	40'	42'	43'	45'	46'	48'	49'
" " 2 mins.	26	27	28	29	30	31	32	33
" " 1 min.	13	14	14	15	15	16	16	17

Ascendant for Latitude 24°0' North

(For all places in or near 24°N latitude)

Minute	SIDEREAL TIME							
	0h	3h	6h	9h	12h	15h	18h	21h
	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s °
0	2 17 3	3 26 26	5 7 0	6 17 34	7 26 57	9 10 42	11 7 0	1 3 18
4	17 56	27 19	7 55	18 27	27 51	11 48	8 21	4 24
8	18 49	28 12	8 50	19 20	28 44	12 54	9 42	5 29
12	19 42	29 5	9 44	20 13	7 29 38	14 1	11 3	6 34
16	20 35	3 29 58	10 39	21 5	8 0 32	15 9	12 24	7 38
20	21 28	4 0 51	11 34	21 58	1 26	16 16	13 45	8 42
24	22 21	1 44	12 29	22 51	2 20	17 25	15 6	9 45
28	23 14	2 38	13 24	23 43	3 14	18 33	16 26	10 48
32	2 24 7	4 3 31	5 14 18	6 24 36	8 4 8	9 19 43	11 17 46	1 11 51
36	24 59	4 24	15 13	25 28	5 3	20 52	19 7	12 53
40	25 52	5 18	16 8	26 21	5 58	22 2	20 27	13 55
44	26 44	6 11	17 2	27 13	6 53	23 13	21 47	14 57
48	27 37	7 5	17 57	28 6	7 48	24 24	23 6	15 58
52	28 29	7 59	18 52	28 58	8 43	25 35	24 26	16 59
56	2 29 22	8 52	19 46	6 29 50	9 38	26 47	25 44	17 59
	1h	4h	7h	10h	13h	16h	19h	22h
0	3 0 14	4 9 46	5 20 41	7 0 43	8 10 34	9 28 0	11 27 3	1 18 59
4	1 6	10 40	21 35	1 35	11 30	9 29 12	28 22	19 59
8	1 58	11 34	22 30	2 27	12 26	10 0 26	11 29 40	20 59
12	2 51	12 28	23 24	3 19	13 23	1 40	0 0 58	21 58
16	3 43	13 22	24 19	4 12	14 19	2 54	2 15	22 57
20	4 35	14 16	25 13	5 4	15 16	4 8	3 32	23 55
24	5 27	15 10	26 7	5 56	16 13	5 24	4 49	24 54
28	6 20	16 4	27 2	6 48	17 11	6 39	6 5	25 52
32	3 7 12	4 16 58	5 27 56	7 7 40	8 18 8	10 7 55	0 7 21	1 26 49
36	8 4	17 53	28 50	8 33	19 6	9 11	8 36	27 47
40	8 56	18 47	5 29 44	9 25	20 5	10 28	9 52	28 44
44	9 48	19 41	6 0 38	10 17	21 3	11 45	11 6	1 29 41
48	10 41	20 36	1 32	11 9	22 2	13 2	12 20	2 0 37
52	11 33	21 30	2 26	12 2	23 1	14 20	13 34	1 34
56	12 25	22 25	3 20	12 54	24 1	15 38	14 47	2 30
	2h	5h	8h	11h	14h	17h	20h	23h
0	3 13 17	4 23 19	6 4 14	7 13 46	8 25 1	10 16 57	0 16 0	2 3 26
4	14 10	24 14	5 8	14 38	26 1	18 16	17 13	4 22
8	15 2	25 8	6 1	15 31	27 1	19 34	18 25	5 17
12	15 54	26 3	6 55	16 23	28 2	20 54	19 36	6 12
16	16 47	26 58	7 49	17 16	8 29 3	22 13	20 47	7 7
20	17 39	27 52	8 42	18 8	9 0 5	23 33	21 58	8 2
24	18 32	28 47	9 36	19 1	1 7	24 53	23 8	8 57
28	19 24	4 29 42	10 29	19 53	2 9	26 14	24 17	9 52
32	3 20 17	5 0 36	6 11 22	7 20 46	9 3 12	10 27 34	0 25 27	2 10 46
36	21 9	1 31	12 16	21 39	4 15	10 28 54	26 35	11 40
40	22 2	2 26	13 9	22 32	5 18	11 0 15	27 44	12 34
44	22 55	3 21	14 2	23 25	6 22	1 36	28 51	13 28
48	23 47	4 16	14 55	24 18	7 26	2 57	0 29 59	14 22
52	24 40	5 10	15 48	25 11	8 31	4 18	1 1 6	15 16
56	25 33	6 5	16 41	26 4	9 36	5 39	2 12	16 9
60	3 26 26	5 7 0	6 17 34	7 26 57	9 10 42	11 7 0	1 3 18	2 17 3

Proportional Parts

Variation in 4 mins. :	1°—7'	1°—9'	1°—11'	1°—13'	1°—15'	1°—17'	1°—19'	1°—21'
Variation in 3 mins.	50'	52'	53'	55'	56'	58'	59'	61'
" " 2 mins.	34	35	36	37	38	39	40	41
" " 1 min.	17	17	18	18	19	19	20	20

Ascendant for Latitude 24°30' North

(For Rajshahi 24°N22', Rewa 24°N31' etc.)

Minute	SIDEREAL TIME							
	0h	3h	6h	9h	12h	15h	18h	21h
	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '
0	2 17 17	3 26 34	5 7 0	6 17 26	7 26 43	9 10 28	11 7 0	1 3 32
4	18 10	27 27	7 54	18 18	27 37	11 34	8 21	4 38
8	19 3	28 20	8 49	19 11	28 30	12 40	9 43	5 43
12	19 56	3 29 13	9 44	20 4	7 29 24	13 47	11 4	6 49
16	20 49	4 0 6	10 39	20 56	8 0 18	14 55	12 26	7 53
20	21 42	0 59	11 33	21 48	1 12	16 4	13 47	8 56
24	22 34	1 52	12 28	22 41	2 6	17 12	15 8	10 0
28	23 28	2 46	13 22	23 34	3 0	18 20	16 29	11 3
32	2 24 20	4 3 38	5 14 17	6 24 26	8 3 54	9 19 29	11 17 50	1 12 6
36	25 12	4 31	15 11	25 18	4 48	20 39	19 11	13 8
40	26 5	5 25	16 6	26 11	5 43	21 49	20 32	14 10
44	26 57	6 18	17 0	27 3	6 38	23 0	21 52	15 12
48	27 50	7 12	17 54	27 56	7 33	24 12	23 11	16 13
52	28 42	8 6	18 49	28 48	8 28	25 23	24 31	17 14
56	2 29 35	8 58	19 43	6 29 41	9 23	26 35	25 50	18 14
	1h	4h	7h	10h	13h	16h	19h	22h
0	3 0 26	4 9 52	5 20 38	7 0 32	8 10 19	9 47 48	11 27 10	1 19 14
4	1 19	10 46	21 32	1 24	11 15	9 29 1	28 29	20 14
8	2 11	11 40	22 26	2 16	12 11	10 0 15	11 29 47	21 14
12	3 3	12 34	23 20	3 8	13 8	1 29	0 1 5	22 13
16	3 55	13 27	24 15	4 1	14 4	2 43	2 23	23 12
20	4 47	14 21	25 9	4 52	15 1	3 58	3 40	24 10
24	5 39	15 15	26 3	5 44	15 58	5 14	4 58	25 9
28	6 32	16 9	26 58	6 36	16 56	6 29	6 14	26 7
32	3 7 25	4 17 3	5 27 51	7 7 28	8 17 53	10 7 46	0 7 30	1 27 54
36	8 16	17 57	28 45	8 21	18 51	9 3	8 46	28 2
40	9 7	18 51	5 29 39	9 13	19 49	10 19	10 2	28 59
44	9 59	19 45	6 0 33	10 5	20 48	11 37	11 16	1 29 56
48	10 52	20 40	1 27	10 57	21 47	12 54	12 31	2 0 52
52	11 44	21 34	2 20	11 50	22 46	14 13	13 45	1 49
56	12 36	22 28	3 14	12 41	23 46	15 31	14 59	2 2 45
	2h	5h	8h	11h	14h	17h	20h	23h
0	3 13 28	4 23 23	6 4 8	7 13 33	8 24 46	10 16 50	0 16 12	2 3 41
4	14 20	24 17	5 2	14 25	25 46	18 10	17 25	4 36
8	15 12	25 11	5 54	15 18	26 46	19 29	18 37	5 32
12	16 5	26 6	6 48	16 10	27 47	20 49	19 48	6 27
16	16 57	27 0	7 42	17 3	28 48	22 8	21 0	7 22
20	17 49	27 54	8 35	17 55	8 29 50	23 28	22 11	8 17
24	18 42	28 49	9 29	18 48	9 0 52	24 49	23 21	9 12
28	19 34	4 29 44	10 22	19 40	1 54	26 10	24 30	10 7
32	3 20 26	5 0 38	6 11 15	7 20 33	9 2 57	10 27 31	0 25 40	2 11 1
36	21 18	1 32	12 8	21 25	4 0	10 28 51	26 48	11 55
40	22 11	2 27	13 1	22 18	5 3	11 0 13	27 57	12 49
44	23 4	3 22	13 54	23 11	6 7	1 34	0 29 5	13 43
48	23 56	4 16	14 47	24 4	7 11	2 55	1 0 12	14 37
52	24 49	5 11	15 40	24 57	8 16	4 17	1 19	15 30
56	25 42	6 6	16 33	25 50	9 22	5 39	2 26	16 24
60	3 26 34	5 7 0	6 17 26	7 26 43	9 10 28	11 7 0	1 3 32	2 17 17

Proportional Parts

Variation in 4 mins. :	0°—52'	0°—54'	0°—56'	0°—58'	1°—0'	1°—2'	1°—4'	1°—6'
Variation in 3 mins.	39'	40'	42'	43'	45'	46'	48'	49'
" " 2 mins.	26	27	28	29	30	31	32	33
" " 1 min.	13	14	14	15	15	16	16	17

Ascendant for Latitude 25°0' North

(For Gaya 24°N48', Karachi 24°N51' etc.)

Minute	SIDEREAL TIME							
	0h	3h	6h	9h	12h	15h	18h	21h
	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '
0	2 17 31	3 26 43	5 7 0	6 17 17	7 26 29	9 10 13	11 7 0	1 3 47
4	18 24	27 36	7 54	18 10	27 22	11 20	8 22	4 52
8	19 17	28 28	8 49	19 2	28 16	12 27	9 44	5 58
12	20 10	3 29 21	9 43	19 55	7 29 9	13 34	11 6	7 3
16	21 3	4 0 14	10 38	20 47	8 0 3	14 41	12 28	8 7
20	21 55	1 7	11 32	21 39	0 57	15 49	13 50	9 11
24	22 48	2 0	12 26	22 32	1 51	16 58	15 11	10 15
28	23 41	2 53	13 21	23 24	2 45	18 7	16 32	11 18
32	2 24 33	4 3 46	5 14 15	6 24 16	8 3 39	9 19 16	11 17 54	1 12 21
36	25 26	4 39	15 9	25 9	4 34	20 26	19 15	13 23
40	26 18	5 32	16 4	26 1	5 28	21 37	20 36	14 25
44	27 10	6 25	16 58	26 53	6 23	22 48	21 57	15 27
48	28 3	7 18	17 52	27 45	7 18	23 59	23 17	16 28
52	28 55	8 12	18 46	28 37	8 13	25 11	24 37	17 29
56	2 29 47	9 5	19 40	6 29 29	9 9	26 24	25 57	18 30
	1h	4h	7h	10h	13h	16h	19h	22h
0	3 0 39	4 9 58	5 20 35	7 0 21	8 10 4	9 27 37	11 27 17	1 19 30
4	1 31	10 52	21 29	1 13	11 0	9 28 50	28 36	20 30
8	2 23	11 45	22 23	2 5	11 56	10 0 4	11 29 55	21 29
12	3 15	12 39	23 17	2 57	12 53	1 18	0 1 13	22 28
16	4 7	13 32	24 11	3 49	13 49	2 33	2 31	23 27
20	4 59	14 25	25 5	4 41	14 46	3 48	3 49	24 26
24	5 51	15 20	25 59	5 33	15 43	5 4	5 7	25 24
28	6 43	16 14	26 53	6 25	16 41	6 20	6 23	26 22
32	3 7 35	4 17 7	5 27 46	7 7 17	8 17 38	10 7 37	0 7 40	1 27 19
36	8 27	18 1	28 40	8 9	18 36	8 54	8 56	28 17
40	9 19	18 55	5 29 34	9 1	19 34	10 11	10 12	1 29 14
44	10 11	19 49	6 0 28	9 53	20 33	11 29	11 27	2 0 11
48	11 3	20 43	1 21	10 45	21 32	12 47	12 42	1 7
52	11 55	21 37	2 15	11 37	22 31	14 5	13 56	2 4
56	12 47	22 31	3 8	12 29	23 30	15 24	15 10	3 0
	2h	5h	8h	11h	14h	17h	20h	23h
0	3 13 39	4 23 25	6 4 2	7 13 21	8 24 30	10 16 43	0 16 23	2 3 56
4	14 31	24 20	4 56	14 13	25 30	18 3	17 36	4 51
8	15 23	25 14	5 48	15 5	26 31	19 23	18 49	5 47
12	16 15	26 3	6 42	15 57	27 32	20 43	20 1	6 42
16	17 7	27 2	7 35	16 50	28 33	22 3	21 12	7 37
20	17 59	27 56	8 28	17 42	8 29 35	23 24	22 23	8 32
24	18 51	28 50	9 21	18 34	9 0 37	24 45	23 34	9 26
28	19 44	4 29 45	10 14	19 27	1 39	26 6	24 44	10 21
32	3 20 36	5 0 39	6 11 7	7 20 19	9 2 42	10 27 28	0 25 53	2 11 15
36	21 28	1 34	12 0	21 12	3 45	10 28 49	27 2	12 9
40	22 21	2 28	12 53	22 5	4 49	11 0 13	28 11	13 3
44	23 13	3 22	13 46	22 57	5 53	1 32	0 29 19	13 57
48	24 5	4 17	14 39	23 50	6 57	2 54	0 26	14 51
52	24 58	5 11	15 32	24 43	8 2	4 16	1 33	15 44
56	25 50	6 6	16 24	25 36	9 8	5 38	2 40	16 38
60	3 26 43	5 7 0	6 17 17	7 26 29	9 10 13	11 7 0	1 3 47	2 17 31

Proportional Parts

Variation in 4 mins. :	1°—8'	1°—10'	1°—12'	1°—14'	1°—16'	1°—18'	1°—20'	1°—22'
Variation in 3 mins.	51'	52'	54'	55'	57'	58'	60'	61'
" " 2 mins.	34	35	36	37	38	39	40	41
" " 1 min.	17	18	18	19	19	20	20	21

Ascendant for Latitude 25°23' North

(For VARANASI 25°N19', Hydcrabad (Pak) 25°N22', Allahabad 25°N28' etc.)

Minute	SIDEREAL TIME																	
	0h			3h			6h			9h			12h			15h			18h			21h		
	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'
0	2	17	42	3	26	50	5	7	0	6	17	10	7	26	18	9	10	2	11	7	0	1	3	58
4		18	35		27	42		7	54		18	3		27	11		11	9		8	22		5	4
8		19	28		28	35		8	49		18	55		28	5		12	16		9	45		6	9
12		20	21	3	29	27		9	43		19	48		28	58		13	23		11	7		7	14
16		21	14	4	0	20		10	37		20	40	7	29	52		14	30		12	30		8	19
20		22	6		1	13		11	31		21	32	8	0	46		15	38		13	52		9	23
24		22	59		2	6		12	25		22	25		1	40		16	47		15	13		10	27
28		23	52		2	59		13	20		23	17		2	34		17	56		16	35		11	30
32	2	24	44	4	3	52	5	14	14	6	24	9	8	3	28	9	19	6	11	17	57	1	12	33
36		25	36		4	45		15	8		25	1		4	22		20	16		19	18		13	35
40		26	28		5	38		16	2		25	53		5	17		21	27		20	40		14	37
44		27	21		6	30		16	56		26	45		6	11		22	38		22	1		15	39
48		28	13		7	23		17	50		27	37		7	6		23	50		23	21		16	40
52		29	5		8	17		18	44		28	29		8	1		25	2		24	42		17	41
56	2	29	57		9	10		19	38	6	29	21		8	57		26	15		26	2		18	42
	1h			4h			7h			10h			13h			16h			19h			22h		
0	3	0	49	4	10	3	5	20	32	7	0	13	8	9	52	9	27	28	11	27	22	1	19	42
4		1	41		10	56		21	26		1	5		10	48		28	41	11	28	42		20	42
8		2	33		11	50		22	20		1	57		11	44	9	29	55	0	0	1		21	41
12		3	25		12	43		23	14		2	49		12	41	10	1	9		1	20		22	40
16		4	17		13	36		24	8		3	40		13	37		2	24		2	38		23	39
20		5	8		14	30		25	2		4	32		14	34		3	40		3	56		24	38
24		6	0		15	24		25	55		5	24		15	31		4	56		5	14		25	36
28		6	52		16	18		26	49		6	16		16	29		6	12		6	31		26	34
32	3	7	44	4	17	11	5	27	42	7	7	8	8	17	26	10	7	29	0	7	48	1	27	31
36		8	36		18	5		28	36		8	0		18	24		8	46		9	4		28	29
40		9	28		18	58	5	29	30		8	52		19	22		10	4		10	20	1	29	26
44		10	20		19	52	6	0	24		9	43		20	21		11	22		11	36	2	0	23
48		11	11		20	46		1	17		10	35		21	20		12	40		12	51		1	19
52		12	3		21	40		2	10		11	27		22	19		13	59		14	5		2	16
56		12	55		22	34		3	4		12	19		23	18		15	18		15	19		3	12
	2h			5h			8h			11h			14h			17h			20h			23h		
0	3	13	47	4	23	28	6	3	57	7	13	11	8	24	18	10	16	38	0	16	32	2	4	8
4		14	39		24	22		4	50		14	3		25	18		17	58		17	45		5	3
8		15	31		25	16		5	43		14	55		26	19		19	18		18	58		5	59
12		16	23		26	10		6	37		15	47		27	20		20	39		20	10		6	54
16		17	15		27	4		7	30		16	39		28	21		21	59		21	22		7	49
20		18	7		27	58		8	22		17	32	8	29	23		23	20		22	33		8	43
24		18	59		28	52		9	15		18	24	9	0	25		24	42		23	44		9	38
28		19	51	4	29	46		10	8		19	16		1	27		26	3		24	54		10	32
32	3	20	43	5	0	40	6	11	1	7	20	8	9	2	30	10	27	25	0	26	4	2	11	26
36		21	35		1	35		11	54		21	1		3	33	10	28	47		27	13		12	20
40		22	28		2	29		12	47		21	54		4	37	11	0	9		28	22		13	14
44		23	20		3	23		13	40		22	46		5	41		1	31	0	29	30		14	8
48		24	12		4	17		14	33		23	39		6	46		2	53	1	0	37		15	2
52		25	5		5	11		15	25		24	32		7	51		4	15		1	44		15	55
56		25	57		6	6		16	18		25	25		8	56		5	38		2	51		16	49
60	3	26	50	5	7	0	6	17	10	7	26	18	9	10	2	11	7	0	1	3	58	2	17	42

Proportional Parts

Variation in 4 mins. :	0°—52'	0°—54'	0°—56'	0°—58'	1°—0'	1°—2'	1°—4'	1°—6'
Variation in 3 mins.	39'	40'	42'	43'	45'	46'	48'	49'
" " 2 mins.	26	27	28	29	30	31	32	33
" " 1 min.	13	14	14	15	15	16	16	17

Ascendant for Latitude 26°0' North

(For Guwahati 26°N10', Darbhanga 26°N10', etc.)

Minute	SIDEREAL TIME																							
	0h			3h			6h			9h			12h			15h			18h			21h		
	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'
0	2	17	59	3	27	0	5	7	0	6	17	0	7	26	1	9	9	44	11	7	0	1	4	16
4		18	52		27	52		7	54		17	52		26	54		10	51		8	23		5	22
8		19	45		28	45		8	48		18	44		27	47		11	58		9	46		6	27
12		20	38	3	29	37		9	42		19	36		28	41		13	5		11	9		7	32
16		21	30	4	0	30		10	36		20	29	7	29	34		14	13		12	32		8	37
20		22	23		1	22		11	30		21	21	8	0	28		15	21		13	54		9	41
24		23	15		2	15		12	24		22	13		1	22		16	30		15	17		10	45
28		24	8		3	7		13	18		23	5		2	16		17	40		16	39		11	48
32	2	25	0	4	4	0	5	14	12	6	23	57	8	3	10	9	18	50	11	18	1	1	12	51
36		25	52		4	53		15	6		24	49		4	4		20	0		19	23		13	54
40		26	44		5	46		15	59		25	40		4	59		21	11		20	45		14	56
44		27	37		6	38		16	53		26	32		5	53		22	22		22	7		15	58
48		28	29		7	31		17	47		27	24		6	48		23	34		23	28		16	59
52	2	29	21		8	24		18	41		28	16		7	43		24	47		24	49		18	0
56	3	0	12		9	17		19	35		29	8		8	39		26	0		26	10		19	0
	1h			4h			7h			10h			13h			16h			19h			22h		
0	3	1	4	4	10	10	5	20	28	6	29	59	8	9	34	9	27	13	11	27	30	1	20	1
4		1	56		11	3		21	22	7	0	51		10	30		28	27	11	28	50		21	0
8		2	48		11	57		22	16		1	43		11	26	9	29	41	0	0	10		22	0
12		3	40		12	50		23	9		2	35		12	22	10	0	56		1	30		22	59
16		4	32		13	43		24	3		3	26		13	19		2	11		2	48		23	58
20		5	23		14	36		24	57		4	18		14	15		3	27		4	7		24	56
24		6	15		15	30		25	50		5	10		15	13		4	43		5	25		25	55
28		7	7		16	23		26	44		6	1		16	10		6	0		6	43		26	53
32	3	7	59	4	17	16	5	27	37	7	6	53	8	17	7	10	7	17	0	8	0	1	27	50
36		8	50		18	10		28	30		7	45		18	5		8	35		9	17		28	47
40		9	42		19	3	5	29	24		8	37		19	4		9	53		10	33	1	29	44
44		10	34		19	57	6	0	17		9	28		20	2		11	12		11	49	2	0	41
48		11	25		20	51		1	10		10	20		21	1		12	30		13	4		1	38
52		12	17		21	44		2	3		11	12		22	0		13	50		14	19		2	34
56		13	9		22	38		2	57		12	4		23	0		15	10		15	33		3	30
	2h			5h			8h			11h			14h			17h			20h			23h		
0	3	14	1	4	23	32	6	3	50	7	12	56	8	23	59	10	16	30	0	16	47	2	4	26
4		14	52		24	25		4	43		13	48		25	0		17	50		18	0		5	21
8		15	44		25	19		5	36		14	39		26	0		19	11		19	13		6	17
12		16	36		26	13		6	29		15	31		27	1		20	32		20	26		7	12
16		17	28		27	7		7	22		16	23		28	2		21	53		21	38		8	7
20		18	20		28	1		8	14		17	16	8	29	4		23	15		22	49		9	1
24		19	11		28	54		9	7		18	8	9	0	6		24	37		24	0		9	56
28		20	3	4	29	48		10	0		19	0		1	9		25	59		25	10		10	50
32	3	20	55	5	0	42	6	10	53	7	19	52	9	2	12	10	27	21	0	26	20	2	11	44
36		21	47		1	36		11	45		20	45		3	15	10	28	43		27	30		12	38
40		22	39		2	30		12	38		21	37		4	19	11	0	6		28	39		13	32
44		23	31		3	24		13	30		22	30		5	23		1	28	0	29	47		14	26
48		24	24		4	18		14	23		23	22		6	28		2	51	1	0	55		15	19
52		25	16		5	12		15	15		24	15		7	33		4	14		2	2		16	13
56		26	8		6	6		16	8		25	8		8	38		5	37		3	9		17	6
60	3	27	0	5	7	0	6	17	0	7	26	1	9	9	44	11	7	0	1	4	16	2	17	59

Proportional Parts

Variation in 4 mins. :	1°—3'	1°—10'	1°—12'	1°—14'	1°—16'	1°—18'	1°—20'	1°—23'
Variation in 3 mins.	51'	52'	54'	55'	57'	58'	1°—0'	1—2'
" " 2 mins.	34	35	36	37	38	39	40	42
" " 1 min.	17	18	18	19	19	20	20	21

Ascendant for Latitude 26°30' North

(For Kanpur 26°N29', Ajmer 26°N27', Tezpur 26°N37', etc.)

Minute	SIDEREAL TIME							
	0h	3h	6h	9h	12h	15h	18h	21h
	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '
0	2 18 14	3 27 9	5 7 0	6 16 51	7 25 47	9 9 29	11 7 0	1 4 31
4	19 7	28 1	7 54	17 43	26 40	10 36	8 23	5 37
8	19 59	28 53	8 48	18 35	27 32	11 43	9 47	6 42
12	20 52	3 29 45	9 41	19 27	28 26	12 50	11 11	7 47
16	21 44	4 0 38	10 35	20 19	7 29 19	13 58	12 34	8 52
20	22 37	1 30	11 29	21 11	8 0 13	15 7	13 57	9 56
24	23 29	2 22	12 23	22 3	1 7	16 16	15 20	11 0
28	24 21	3 15	13 16	22 55	2 1	17 26	16 42	12 3
32	2 25 13	4 4 7	5 14 10	6 23 47	8 2 55	9 18 36	11 18 5	1 13 6
36	26 5	5 0	15 4	24 39	3 49	19 46	19 28	14 9
40	26 57	5 53	15 57	25 30	4 44	20 57	20 50	15 12
44	27 50	6 45	16 51	26 22	5 38	22 9	22 12	16 14
48	28 42	7 38	17 45	27 14	6 33	23 21	23 34	17 15
52	2 29 34	8 30	18 38	28 5	7 28	24 34	24 55	18 16
56	3 0 25	9 23	19 32	28 57	8 24	25 47	26 16	19 16
	1h	4h	7h	10h	13h	16h	19h	22h
0	3 1 17	4 10 16	5 20 25	6 29 48	8 9 19	9 27 1	11 27 37	1 20 17
4	2 9	11 9	21 19	7 0 40	10 14	28 15	11 28 58	21 16
8	3 0	12 3	22 12	1 32	11 10	9 29 29	0 0 18	22 16
12	3 52	12 56	23 5	2 23	12 6	10 0 44	1 38	23 15
16	4 44	13 48	23 59	3 14	13 3	2 0	2 57	24 14
20	5 35	14 41	24 52	4 6	14 0	3 16	4 16	25 12
24	6 27	15 35	25 45	4 58	14 57	4 33	5 35	26 11
28	7 19	16 28	26 39	5 49	15 54	5 50	6 53	27 9
32	3 8 11	4 17 21	5 27 32	7 6 41	8 16 51	10 7 7	0 8 10	1 28 6
36	9 2	18 14	28 25	7 33	17 49	8 25	9 27	1 29 3
40	9 54	19 7	5 29 19	8 25	18 48	9 44	10 44	2 0 0
44	10 46	20 1	6 0 12	9 16	19 46	11 3	12 0	0 57
48	11 37	20 55	1 5	10 8	20 45	12 22	13 16	1 54
52	12 28	21 48	1 58	11 0	21 44	13 42	14 31	2 50
56	13 20	22 41	2 51	11 51	22 44	15 2	15 45	3 46
	2h	5h	8h	11h	14h	17h	20h	23h
0	3 14 12	4 23 35	6 3 44	7 12 43	8 23 43	10 16 23	0 16 59	2 4 41
4	15 3	24 28	4 37	13 35	24 44	17 44	18 13	5 36
8	15 55	25 22	5 30	14 26	25 44	19 5	19 26	6 32
12	16 46	26 15	6 22	15 18	26 45	20 26	20 39	7 27
16	17 38	27 9	7 15	16 10	27 46	21 48	21 51	8 22
20	18 30	28 3	8 7	17 3	28 48	23 10	23 3	9 16
24	19 21	28 56	9 0	17 55	8 29 51	24 32	24 14	10 11
28	20 13	4 29 50	9 53	18 47	9 0 54	25 55	25 24	11 5
32	3 21 5	5 0 44	6 10 46	7 19 39	9 1 57	10 27 17	0 26 34	2 11 59
36	21 57	1 37	11 38	20 31	3 0	10 28 40	27 44	12 53
40	22 49	2 31	12 30	21 23	4 4	11 0 3	0 28 53	13 47
44	23 41	3 25	13 22	22 16	5 8	1 26	1 0 2	14 41
48	24 33	4 19	14 15	23 8	6 13	2 49	1 10	15 34
52	25 25	5 12	15 7	24 1	7 18	4 13	2 17	16 27
56	26 17	6 6	15 59	24 54	8 23	5 37	3 24	17 20
60	3 27 9	5 7 0	6 16 51	7 25 47	9 9 29	11 7 0	1 4 31	2 18 14

Proportional Parts

Variation in 4 mins. :	0°—51'	0°—53'	0°—56'	0°—58'	1°—0'	1°—2'	1°—4'	1°—6'
Variation in 3 mins.	38'	40'	42'	43'	45'	46'	48'	49'
" " 2 mins.	26	27	28	29	30	31	32	33
" " 1 min.	13	13	14	15	15	16	16	17

Ascendant for Latitude 27° 0' North

(For Lucknow 26°N51', Jaipur 26°N55', Darjeeling 27°N3', Agra 27°N11' etc.)

Minute	SIDEREAL TIME							
	0h	3h	6h	9h	12h	15h	18h	21h
	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '
0	2 18 28	3 27 18	5 7 0	6 16 42	7 25 32	9 9 14	11 7 0	1 4 46
4	19 21	28 10	7 54	17 34	26 25	10 21	8 24	5 52
8	20 13	29 2	8 47	18 26	27 18	11 28	9 48	6 58
12	21 6	3 29 54	9 41	19 18	28 11	12 36	11 12	8 3
16	21 58	4 0 46	10 34	20 10	29 5	13 44	12 36	9 8
20	22 51	1 38	11 28	21 2	7 29 58	14 53	13 59	10 12
24	23 43	2 30	12 21	21 53	8 0 52	16 2	15 23	11 16
28	24 35	3 22	13 15	22 45	1 46	17 12	16 46	12 19
32	2 25 27	4 4 15	5 14 8	6 23 37	8 2 40	9 18 22	11 18 9	1 13 22
36	26 19	5 7	15 2	24 28	3 34	19 33	19 32	14 25
40	27 11	5 59	15 55	25 20	4 28	20 44	20 55	15 27
44	28 3	6 52	16 49	26 12	5 23	21 56	22 18	16 29
48	28 55	7 44	17 42	27 3	6 18	23 8	23 40	17 30
52	2 29 47	8 37	18 36	27 55	7 13	24 21	25 2	18 31
56	3 0 38	9 30	19 29	28 46	8 8	25 34	26 23	19 32
	1h	4h	7h	10h	13h	16h	19h	22h
0	3 1 30	4 10 22	5 20 22	6 29 38	8 9 3	9 26 48	11 27 45	1 20 32
4	2 22	11 15	21 15	7 0 29	9 59	28 3	11 29 5	21 32
8	3 13	12 8	22 9	1 21	10 55	9 29 17	0 0 26	22 31
12	4 5	13 1	23 2	2 12	11 51	10 0 33	1 46	23 31
16	4 56	13 53	23 55	3 3	12 48	1 49	3 6	24 30
20	5 48	14 46	24 48	3 55	13 44	3 5	4 25	25 28
24	6 39	15 39	25 41	4 46	14 41	4 22	5 44	26 36
28	7 31	16 32	26 35	5 38	15 38	5 40	7 2	27 24
32	3 8 22	4 17 25	5 27 28	7 6 29	8 16 36	10 6 58	0 8 20	1 28 22
36	9 14	18 19	28 21	7 21	17 34	8 16	9 38	1 29 19
40	10 5	19 12	5 29 14	8 12	18 32	9 35	10 55	2 0 16
44	10 57	20 5	6 0 7	9 4	19 30	10 54	12 11	1 12
48	11 48	20 58	0 59	9 55	20 29	12 14	13 27	2 9
52	12 39	21 51	1 52	10 47	21 29	13 34	14 43	3 5
56	13 31	22 44	2 45	11 38	22 28	14 55	15 57	4 1
	2h	5h	8h	11h	14h	17h	20h	23h
0	3 14 22	4 23 38	6 3 38	7 12 30	8 23 28	10 16 15	0 17 12	2 4 57
4	15 14	24 31	4 30	13 22	24 28	17 37	18 26	5 52
8	16 5	25 24	5 23	14 13	25 29	18 58	19 39	6 47
12	16 57	26 18	6 16	15 5	26 30	20 20	20 52	7 42
16	17 48	27 11	7 8	15 57	27 31	21 42	22 4	8 37
20	18 40	28 5	8 0	16 49	28 33	23 5	23 16	9 32
24	19 32	28 58	8 53	17 41	8 29 35	24 28	24 27	10 26
28	20 23	4 29 52	9 45	18 33	9 0 38	25 51	25 38	11 20
32	3 21 15	5 0 45	6 10 38	7 19 25	9 1 41	10 27 14	0 26 48	2 12 14
36	22 7	1 39	11 39	20 17	2 44	10 28 37	27 58	13 8
40	22 58	2 32	12 22	21 9	3 48	11 0 1	0 29 7	14 2
44	23 50	3 26	13 14	22 2	4 52	1 24	1 0 16	14 55
48	24 42	4 19	14 6	22 54	5 57	2 48	1 24	15 49
52	25 34	5 13	14 58	23 47	7 2	4 12	2 32	16 42
56	26 26	6 6	15 50	24 39	8 8	5 36	3 39	17 35
60	3 27 18	5 7 0	6 16 42	7 25 32	9 9 14	11 7 0	1 4 46	2 18 28

Proportional Parts

Variation in 4 mins. :	1°—8'	1°—10'	1°—12'	1°—14'	1°—16'	1°—19'	1°—21'	1°—24'
Variation in 3 mins.	51'	52'	54'	55'	57'	59'	1°—1'	1°—3'
" " 2 mins.	34	35	36	37	38	40	41	42
" " 1 min.	17	18	18	19	19	20	20	21

Ascendant for Latitude 27°30' North

(For Mathura 27°N28', Dibrugarh 27°N29', Kathmandu 27°N42' etc.)

Minute	SIDEREAL TIME								
	0h	3h	6h	9h	12h	15h	18h	21h	
	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	
0	2 18 43	3 27 26	5 7 0	6 16 34	7 25 17	9 8 58	11 7 0	1 5 1	
4	19 35	28 18	7 53	17 25	26 10	10 5	8 24	6 8	
8	20 27	3 29 10	8 46	18 17	27 3	11 13	9 49	7 14	
12	21 20	4 0 2	9 40	19 9	27 56	12 21	11 14	8 19	
16	22 12	0 54	10 33	20 1	28 50	13 29	12 38	9 24	
20	23 5	1 46	11 27	20 53	7 29 43	14 38	14 2	10 28	
24	23 57	2 38	12 20	21 44	8 0 37	15 47	15 26	11 32	
28	24 49	3 30	13 13	22 35	1 31	16 57	16 50	12 35	
32	2 25 41	4 4 22	5 14 6	6 23 27	8 2 25	9 18 8	11 18 13	1 13 38	
36	26 33	5 14	15 0	24 18	3 19	19 19	19 37	14 41	
40	27 25	6 6	15 53	25 10	4 13	20 30	21 0	15 43	
44	28 17	6 59	16 46	26 1	5 8	21 42	22 23	16 45	
48	2 29 8	7 51	17 39	26 52	6 3	22 54	23 46	17 46	
52	3 0 0	8 43	18 33	27 44	6 58	24 7	25 8	18 47	
56	0 51	9 36	19 26	28 35	7 53	25 21	26 30	19 48	
	1h	4h	7h	10h	13h	16h	19h	22h	
0	3 1 43	4 10 28	5 20 19	6 29 27	8 8 48	9 26 35	11 27 52	1 20 48	
4	2 35	11 21	21 13	7 0 18	9 43	27 50	11 29 13	21 48	
8	3 26	12 14	22 6	1 10	10 39	9 29 5	0 0 34	22 47	
12	4 17	13 6	22 58	2 1	11 35	10 0 21	1 55	23 47	
16	5 8	13 58	23 51	2 52	12 32	1 37	3 15	24 46	
20	6 0	14 51	24 44	3 43	13 28	2 54	4 35	25 44	
24	6 51	15 44	25 37	4 34	14 25	4 11	5 54	26 42	
28	7 43	16 37	26 30	5 26	15 22	5 29	7 12	27 40	
32	3 8 34	4 17 30	5 27 23	7 6 17	8 16 20	10 6 48	0 8 31	1 28 38	
36	9 26	18 23	28 16	7 9	17 18	8 6	9 49	1 29 35	
40	10 17	19 16	5 29 9	8 0	18 16	9 25	11 6	2 0 32	
44	11 8	20 9	6 0 2	8 52	19 14	10 45	12 23	1 28	
48	11 59	21 2	0 54	9 43	20 13	12 5	13 39	2 25	
52	12 50	21 54	1 46	10 34	21 13	13 26	14 55	3 21	
56	13 42	22 47	2 39	11 25	22 12	14 47	16 10	4 17	
	2h	5h	8h	11h	14h	17h	20h	23h	
0	3 14 33	4 23 41	6 3 32	7 12 17	8 23 12	10 16 8	0 17 25	2 5 12	
4	15 25	24 34	4 24	13 9	24 12	17 30	18 39	6 7	
8	16 16	25 27	5 17	14 0	25 13	18 52	19 53	7 2	
12	17 8	26 20	6 9	14 52	26 14	20 14	21 6	7 57	
16	17 59	27 13	7 1	15 43	27 15	21 37	22 18	8 52	
20	18 50	28 7	7 54	16 35	28 17	23 0	23 30	9 47	
24	19 42	29 0	8 46	17 27	8 29 19	24 23	24 41	10 41	
28	20 33	4 29 54	9 38	18 19	9 0 22	25 47	25 52	11 35	
32	3 21 25	5 0 47	6 10 30	7 19 11	9 1 25	10 27 10	0 27 3	2 12 29	
36	22 16	1 40	11 22	20 3	2 28	28 34	28 13	13 23	
40	23 7	2 33	12 14	20 55	3 32	10 29 58	0 29 22	14 17	
44	23 59	3 27	13 6	21 48	4 36	11 1 22	1 0 31	15 10	
48	24 51	4 20	13 58	22 40	5 41	2 46	1 39	16 4	
52	25 43	5 14	14 50	23 33	6 46	4 11	2 47	16 57	
56	26 35	6 7	15 42	24 25	7 52	5 36	3 54	17 50	
60	3 27 26	5 7 0	6 16 34	7 25 17	9 8 58	11 7 0	1 5 1	2 18 43	

Proportional Parts

Variation in 4 mins. :	0°—51'	0°—53'	0°—56'	0°—58'	1°—0'	1°—2'	1°—4'	1°—6"
Variation in 3 mins.	38'	40'	42'	43'	45'	46'	48'	49'
" " 2 mins.	26	27	28	29	30	31	32	33
" " 1 min.	13	13	14	15	15	16	16	17

Ascendant for Latitude 28° 0' North

(For Aligarh 27°N54', Bikaner 28°N1' etc.)

Minute	SIDEREAL TIME								
	0h	3h	6h	9h	12h	15h	18h	21h	
	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	
0	2 18 57	3 27 35	5 7 0	6 16 25	7 25 3	9 8 43	11 7 0	1 5 17	
4	19 49	28 27	7 53	17 17	25 56	9 50	8 25	6 23	
8	20 42	3 29 18	8 46	18 8	26 49	10 58	9 50	7 29	
12	21 34	4 0 10	9 39	19 0	27 42	12 6	11 15	8 34	
16	22 27	1 2	10 33	19 51	28 35	13 14	12 40	9 39	
20	23 19	1 54	11 26	20 43	7 29 28	14 23	14 5	10 44	
24	24 11	2 45	12 19	21 34	8 0 22	15 33	15 29	11 48	
28	25 3	3 37	13 12	22 26	1 16	16 43	16 53	12 51	
32	2 25 55	4 4 29	5 14 5	6 23 17	8 2 9	9 17 53	11 18 18	1 13 55	
36	26 47	5 21	14 58	24 8	3 3	19 4	19 42	14 57	
40	27 38	6 13	15 51	24 59	3 58	20 16	21 5	15 59	
44	28 30	7 5	16 44	25 51	4 52	21 28	22 28	17 1	
48	2 29 22	7 58	17 37	26 42	5 47	22 41	23 52	18 3	
52	3 0 13	8 50	18 30	27 33	6 42	23 54	25 15	19 4	
56	1 4	9 42	19 23	28 24	7 37	25 8	26 37	20 4	
	1h	4h	7h	10h	13h	16h	19h	22h	
0	3 1 56	4 10 34	5 20 16	6 29 16	8 8 32	9 26 23	11 27 59	1 21 4	
4	2 47	11 27	21 9	7 0 7	9 27	27 38	11 29 21	22 4	
8	3 39	12 19	22 2	0 58	10 23	9 28 53	0 0 43	23 4	
12	4 30	13 12	22 55	1 49	11 19	10 0 9	2 3	24 3	
16	5 21	14 4	23 47	2 40	12 16	1 26	3 24	25 2	
20	6 13	14 57	24 40	3 31	13 12	2 43	4 44	26 0	
24	7 4	15 49	25 33	4 23	14 9	4 0	6 4	26 58	
28	7 55	16 42	26 26	5 14	15 6	5 19	7 23	27 56	
32	3 8 46	4 17 34	5 27 18	7 6 5	8 16 4	10 6 37	0 8 41	1 28 54	
36	9 37	18 27	28 11	6 56	17 2	7 56	10 0	1 29 51	
40	10 28	19 20	29 3	7 47	18 0	9 16	11 17	2 0 48	
44	11 20	20 13	5 29 56	8 39	18 58	10 36	12 34	1 44	
48	12 11	21 5	6 0 48	9 30	19 57	11 57	13 51	2 41	
52	13 2	21 58	1 41	10 21	20 56	13 17	15 7	3 37	
56	13 53	22 51	2 33	11 13	21 56	14 39	16 22	4 33	
	2h	5h	8h	11h	14h	17h	20h	23h	
0	3 14 44	4 23 44	6 3 26	7 12 4	8 22 56	10 16 1	0 17 37	2 5 28	
4	15 36	24 37	4 18	12 56	23 56	17 23	18 52	6 23	
8	16 27	25 30	5 10	13 47	24 56	18 45	20 6	7 18	
12	17 18	26 23	6 2	14 38	25 57	20 8	21 19	8 13	
16	18 9	27 16	6 55	15 30	26 59	21 32	22 32	9 8	
20	19 1	28 9	7 47	16 22	28 1	22 55	23 44	10 2	
24	19 52	29 2	8 39	17 13	8 29 3	24 18	24 56	10 57	
28	20 43	4 29 55	9 31	18 5	9 0 5	25 42	26 7	11 51	
32	3 21 34	5 0 48	6 10 23	7 18 57	9 1 9	10 27 7	0 27 17	2 12 44	
36	22 26	1 41	11 15	19 49	2 12	28 31	28 27	13 38	
40	23 17	2 34	12 6	20 41	3 16	10 29 55	0 29 37	14 32	
44	24 9	3 27	12 58	21 33	4 21	11 1 20	1 0 46	15 25	
48	25 0	4 21	13 50	22 26	5 26	2 45	1 54	16 18	
52	25 52	5 14	14 42	23 18	6 31	4 10	3 2	17 11	
56	26 43	6 7	15 33	24 11	7 37	5 35	4 10	18 4	
60	3 27 35	5 7 0	6 16 25	7 25 3	9 8 43	11 7 0	1 5 17	2 18 57	

Proportional Parts

Variation in 4 mins. :	1°—8'	1°—10'	1°—12'	1°—15'	1°—17'	1°—20'	1°—22'	1°—25"
Variation in 3 mins.	51'	52'	54'	56'	58'	1 — 0'	1 — 1'	1 — 4'
" " 2 mins.	34	35	36	38	39	40	41	43
" " 1 min.	17	18	18	19	19	20	21	21

Ascendant for DELHI, Latitude 28°39' North

(For all places in or near 28°39'N latitude)

Minute	SIDEREAL TIME							
	0h	3h	6h	9h	12h	15h	18h	21h
	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '
0	2 19 16	3 27 46	5 7 0	6 16 14	7 24 44	9 8 23	11 7 0	1 5 37
4	20 8	28 38	7 53	17 5	25 37	9 30	8 26	6 44
8	21 1	3 29 29	8 45	17 56	26 30	10 37	9 51	7 50
12	21 53	4 0 20	9 38	18 48	27 23	11 45	11 17	8 55
16	22 45	1 12	10 32	19 39	28 16	12 54	12 43	10 0
20	23 37	2 4	11 25	20 31	7 29 9	14 4	14 8	11 5
24	24 29	2 55	12 17	21 22	8 0 2	15 13	15 34	12 9
28	25 21	3 47	13 10	22 13	0 56	16 24	16 58	13 12
32	2 26 13	4 4 39	5 14 3	6 23 4	8 1 49	9 17 34	11 18 23	1 14 15
36	27 5	5 31	14 55	23 55	2 43	18 45	19 48	15 18
40	27 56	6 22	15 48	24 46	3 37	19 57	21 12	16 20
44	28 48	7 14	16 41	25 37	4 32	21 10	22 36	17 22
48	2 29 39	8 6	17 34	26 28	5 26	22 23	24 0	18 24
52	3 0 31	8 58	18 27	27 19	6 21	23 36	25 23	19 25
56	1 22	9 50	19 19	28 10	7 16	24 50	26 46	20 25
	1h	4h	7h	10h	13h	16h	19h	22h
0	3 2 13	4 10 42	5 20 12	6 29 1	8 8 11	9 26 5	11 26 9	1 21 26
4	3 4	11 35	21 4	6 29 52	9 6	27 21	11 29 32	22 25
8	3 55	12 27	21 57	7 0 43	10 2	28 37	0 0 54	23 25
12	4 46	13 19	22 50	1 34	10 58	9 29 53	2 15	24 24
16	5 38	14 11	23 42	2 25	11 55	10 1 10	3 36	25 23
20	6 29	15 4	24 35	3 16	12 51	2 27	4 57	26 21
24	7 20	15 56	25 27	4 7	13 48	3 45	6 17	27 19
28	8 11	16 48	26 20	4 58	14 45	5 4	7 37	28 17
32	3 9 2	4 17 40	5 27 12	7 5 49	8 15 43	10 6 23	0 8 56	1 29 15
36	9 53	18 33	28 4	6 40	16 41	7 43	10 14	2 0 12
40	10 44	19 25	28 56	7 31	17 39	9 3	11 32	1 9
44	11 35	20 18	5 29 49	8 22	18 37	10 24	12 50	2 5
48	12 26	21 10	6 0 41	9 14	19 36	11 45	14 7	3 2
52	13 17	22 3	1 33	10 5	20 35	13 6	15 23	3 58
56	14 8	23 56	2 25	10 56	21 35	14 28	16 39	4 54
	2h	5h	8h	11h	14h	17h	20h	23h
0	3 14 59	4 23 48	6 3 18	7 11 47	8 22 34	10 15 51	0 17 55	2 5 49
4	15 50	24 41	4 10	12 38	23 35	17 14	19 10	6 44
8	16 41	25 33	5 2	13 29	24 35	18 37	20 24	7 39
12	17 32	26 26	5 54	14 21	25 36	20 0	21 37	8 34
16	18 23	27 19	6 46	15 12	26 38	21 24	22 50	9 28
20	19 14	28 12	7 38	16 4	27 40	22 48	24 3	10 23
24	20 5	29 5	8 29	16 55	28 42	24 12	25 15	11 17
28	20 56	4 29 57	9 21	17 47	8 29 44	25 37	26 26	12 11
32	3 21 47	5 0 50	6 10 13	7 18 39	9 0 47	10 27 2	0 27 36	2 13 4
36	22 38	1 43	11 5	19 31	1 51	28 27	28 47	13 58
40	23 29	2 35	11 56	20 23	2 55	10 29 52	0 29 56	14 51
44	24 21	3 28	12 48	21 15	4 0	11 1 17	1 1 6	15 44
48	25 12	4 22	13 40	22 7	5 5	2 43	2 15	16 37
52	26 4	5 15	14 31	22 59	6 10	4 9	3 23	17 30
56	26 55	6 7	15 22	23 52	7 16	5 34	4 30	18 23
60	3 27 46	5 7 0	6 16 14	7 24 44	9 8 23	11 7 0	1 5 37	2 19 16

Proportional Parts

Variation in 4 mins. :	0°—51'	0°—53'	0°—56'	0°—58'	1°—0'	1°—2'	1°—4'	1°—6'
Variation in 3 mins.	38'	40'	42'	43'	45'	46'	48'	49'
" " 2 mins.	26	27	28	29	30	31	32	33
" " 1 min.	13	13	14	15	15	16	16	17

Ascendant for Latitude 29°0' North

(For Meerut 29°N01', Hissar 29°N10' etc.)

Minute	SIDEREAL TIME							
	0h	3h	6h	9h	12h	15h	18h	21h
	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '
0	2 19 26	3 27 52	5 7 0	6 16 8	7 24 34	9 8 12	11 7 0	1 5 48
4	20 19	28 44	7 53	16 59	25 26	9 19	8 26	6 55
8	21 11	3 29 35	8 45	17 50	26 19	10 26	9 52	8 1
12	22 3	4 0 26	9 38	18 41	27 12	11 34	11 18	9 7
16	22 55	1 18	10 31	19 32	28 5	12 43	12 44	10 12
20	23 47	2 9	11 24	20 24	28 58	13 53	14 10	11 16
24	24 39	3 1	12 16	21 15	7 29 51	15 2	15 36	12 21
28	25 31	3 52	13 9	22 6	8 0 45	16 13	17 1	13 24
32	2 26 23	4 4 44	5 14 2	6 22 57	8 1 38	9 17 24	11 18 26	1 14 27
36	27 14	5 36	14 54	23 48	2 32	18 35	19 51	15 30
40	28 6	6 27	15 47	24 39	3 26	19 47	21 16	16 32
44	28 57	7 19	16 40	25 30	4 21	21 0	22 40	17 34
48	2 29 48	8 11	17 32	26 21	5 15	22 13	24 5	18 36
52	3 0 40	9 3	18 25	27 12	6 10	23 27	25 28	19 37
56	1 31	9 55	19 17	28 3	7 5	24 41	26 52	20 37
	1h	4h	7h	10h	13h	16h	19h	22h
0	3 2 22	4 10 47	5 20 10	6 28 53	8 8 0	9 25 56	11 28 15	1 21 38
4	3 13	11 39	21 2	6 29 44	8 55	27 12	11 29 38	22 37
8	4 4	12 31	21 55	7 0 35	9 51	28 28	0 1 0	23 37
12	4 55	13 23	22 47	1 26	10 47	9 29 44	2 22	24 36
16	5 47	14 15	23 40	2 17	11 43	10 1 2	3 43	25 35
20	6 38	15 7	24 32	3 8	12 40	2 19	5 4	26 33
24	7 28	15 59	25 24	3 59	13 37	3 38	6 24	27 31
28	8 19	16 51	26 17	4 50	14 34	4 56	7 44	28 29
32	3 9 10	4 17 43	5 27 9	7 5 41	8 15 31	10 6 16	0 9 3	1 29 26
36	10 1	18 36	28 1	6 31	16 29	7 36	10 22	2 0 23
40	10 52	19 28	28 53	7 22	17 27	8 56	11 40	1 20
44	11 43	20 20	5 29 45	8 13	18 25	10 17	12 58	2 17
48	12 34	21 13	6 0 37	9 5	19 24	11 38	14 16	3 13
52	13 25	22 5	1 29	9 56	20 23	13 0	15 32	4 9
56	14 16	22 58	2 21	10 47	21 23	14 22	16 48	5 5
	2h	5h	8h	11h	14h	17h	20h	23h
0	3 15 7	4 23 50	6 3 13	7 11 38	8 22 22	10 15 45	0 18 4	2 6 0
4	15 57	24 43	4 5	12 29	23 23	17 8	19 19	6 55
8	16 48	25 35	4 57	13 20	24 23	18 32	20 33	7 50
12	17 39	26 28	5 49	14 12	25 24	19 56	21 47	8 45
16	18 30	27 20	6 41	15 3	26 26	21 20	23 0	9 39
20	19 21	28 13	7 33	15 54	27 28	22 44	24 13	10 34
24	20 12	29 6	8 24	16 46	28 30	24 9	25 25	11 28
28	21 3	4 29 58	9 16	17 37	8 29 33	25 34	26 36	12 22
32	3 21 54	5 0 51	6 10 8	7 18 29	9 0 36	10 26 59	0 27 47	2 13 15
36	22 45	1 44	10 59	19 21	1 40	28 24	0 28 58	14 9
40	23 36	2 36	11 51	20 13	2 44	10 29 50	1 0 7	15 2
44	24 28	3 29	12 42	21 5	3 48	11 1 16	1 17	15 55
48	25 19	4 22	13 34	21 57	4 53	2 42	2 25	16 48
52	26 10	5 15	14 25	22 49	5 59	4 8	3 34	17 41
56	27 1	6 7	15 16	23 41	7 5	5 34	4 41	18 34
60	3 27 52	5 7 0	6 16 8	7 24 34	9 8 12	11 7 0	1 5 48	2 19 26

Proportional Parts

Variation in 4 mins. :	1°—8'	1°—11'	1°—13'	1°—16'	1°—18'	1°—21'	1°—23'	1°—26'
Variation in 3 mins.	51'	53'	55'	57'	58'	1 — 1'	1 — 2'	1 — 4'
" " 2 mins.	34	36	37	38	39	41	42	43
" " 1 min.	17	18	18	19	20	20	21	22

Ascendant for Latitude 30°0' North

(For Hardwar 29°N56', Quetta 30°N12', Dehra Dun 30°N19', etc.)

Minute	SIDEREAL TIME							
	0h	3h	6h	9h	12h	15h	18h	21h
	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '
0	2 19 56	3 28 10	5 7 0	6 15 50	7 24 4	9 7 39	11 7 0	1 6 21
4	20 49	29 1	7 52	16 41	24 56	8 46	8 27	7 28
8	21 41	3 29 52	8 45	17 32	25 49	9 54	9 54	8 34
12	22 33	4 0 43	9 37	18 23	26 41	11 2	11 22	9 40
16	23 24	1 34	10 29	19 13	27 34	12 11	12 49	10 45
20	24 16	2 25	11 21	20 4	28 27	13 21	14 16	11 50
24	25 8	3 16	12 14	20 55	7 29 20	14 31	15 42	12 54
28	25 59	4 8	13 6	21 46	8 0 13	15 42	17 9	13 58
32	2 26 51	4 4 59	5 13 58	6 22 36	8 1 7	9 16 53	11 18 35	1 15 1
36	27 42	5 50	14 50	23 27	2 1	18 5	20 1	16 4
40	28 33	6 42	15 43	24 18	2 55	19 17	21 27	17 6
44	2 29 25	7 33	16 35	25 8	3 49	20 30	22 53	18 8
48	3 0 16	8 22	17 27	25 59	4 43	21 44	24 18	19 10
52	1 7	9 16	18 19	26 50	5 37	22 58	25 43	20 11
56	1 58	10 7	19 11	27 40	6 32	24 13	27 7	21 11
	1h	4h	7h	10h	13h	16h	19h	22h
0	3 2 49	4 10 59	5 20 4	6 28 31	8 7 27	9 25 29	11 28 31	1 22 11
4	3 40	11 50	20 56	6 29 22	8 23	26 45	11 29 55	23 11
8	4 31	12 42	21 48	7 0 12	9 18	28 2	0 1 18	24 11
12	5 21	13 34	22 40	1 3	10 14	9 29 19	2 41	25 10
16	6 12	14 25	23 32	1 53	11 10	10 0 37	4 3	26 8
20	7 3	15 17	24 24	2 44	12 7	1 55	5 25	27 7
24	7 53	16 9	25 15	3 35	13 3	3 14	6 46	28 5
28	8 44	17 1	26 7	4 25	14 0	4 34	8 6	1 29 2
32	3 9 35	4 17 53	5 26 59	7 5 16	8 14 58	10 5 54	0 9 26	2 0 0
36	10 25	18 45	27 51	6 7	15 55	7 14	10 46	0 57
40	11 16	19 36	28 43	6 57	16 53	8 35	12 5	1 53
44	12 7	20 28	5 29 35	7 48	17 52	9 57	13 23	2 50
48	12 57	21 20	6 0 26	8 39	18 50	11 19	14 41	3 46
52	13 48	22 12	1 18	9 29	19 49	12 42	15 58	4 42
56	14 38	23 4	2 10	10 20	20 49	14 5	17 15	5 37
	2h	5h	8h	11h	14h	17h	20h	23h
0	3 15 29	4 23 57	6 3 1	7 11 11	8 21 49	10 15 29	0 18 31	2 6 33
4	16 20	24 49	3 53	12 2	22 49	16 53	19 47	7 28
8	17 10	25 41	4 44	12 53	23 49	18 17	21 2	8 23
12	18 1	26 33	5 36	13 44	24 50	19 42	22 16	9 17
16	18 52	27 25	6 27	14 35	25 52	21 7	23 30	10 11
20	19 42	28 17	7 18	15 27	26 54	22 33	24 43	11 5
24	20 33	4 29 10	8 10	16 18	27 56	23 59	25 55	11 59
28	21 24	5 0 2	9 1	17 9	8 28 59	25 25	27 7	12 53
32	3 22 14	5 0 54	6 9 52	7 18 1	9 0 2	10 26 51	0 28 18	2 13 47
36	23 5	1 46	10 44	18 52	1 6	28 18	0 29 29	14 40
40	23 56	2 39	11 35	19 44	2 10	10 29 44	1 0 39	15 33
44	24 47	3 31	12 26	20 36	3 15	11 1 11	1 49	16 26
48	25 37	4 23	13 17	21 27	4 20	2 38	2 58	17 19
52	26 28	5 15	14 8	22 19	5 26	4 6	4 6	18 11
56	27 19	6 8	14 59	23 11	6 32	5 33	5 14	19 4
60	3 28 10	5 7 0	6 15 50	7 24 4	9 7 39	11 7 0	1 6 21	2 19 56

Proportional Parts

Variation in 4 mins. :	0°—50'	0°—53'	0°—55'	0°—58'	1°—0'	1°—3'	1°—5'	1°—8'
Variation in 3 mins.	37'	40'	41'	43'	45'	47'	49'	51'
" " 2 mins.	25	27	28	29	30	32	33	34
" " 1 min.	13	13	14	15	15	16	16	17

Ascendant for Latitude 31° 0' North

(For Simla 31°N6', Ludhiana and Ferozepur 30°N55' etc.)

Minute	SIDEREAL TIME																	
	0h			3h			6h			9h			12h			15h			18h			21h		
	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'
0	2	20	27	3	28	28	5	7	0	6	15	32	7	23	33	9	7	5	11	7	0	1	6	55
4		21	19	3	29	18		7	52		16	23		24	25		8	13		8	28		8	2
8		22	11	4	0	9		8	44		17	13		25	18		9	21		9	57		9	8
12		23	3		1	0		9	36		18	4		26	10		10	29		11	25		10	14
16		23	54		1	51		10	28		18	54		27	3		11	38		12	53		11	19
20		24	46		2	41		11	19		19	45		27	55		12	48		14	22		12	24
24		25	37		3	32		12	11		20	35		28	48		13	59		15	50		13	29
28		26	28		4	23		13	3		21	26	7	29	41		15	10		17	17		14	33
32	2	27	19	4	5	14	5	13	55	6	22	16	8	0	35	9	16	21	11	18	45	1	15	36
36		28	11		6	5		14	47		23	6		1	28		17	33		20	12		16	39
40		29	2		6	56		15	38		23	57		2	22		18	46		21	39		17	41
44	2	29	52		7	47		16	30		24	47		3	16		20	0		23	5		18	43
48	3	0	43		8	38		17	22		25	37		4	10		21	14		24	32		19	44
52		1	34		9	29		18	14		26	28		5	5		22	29		25	58		20	46
56		2	25		10	20		19	5		27	18		5	59		23	44		27	23		21	46
	1h			4h			7h			10h			13h			16h			19h			22h		
0	3	3	16	4	11	11	5	19	57	6	28	8	8	6	54	9	25	0	11	28	48	1	22	46
4		4	6		12	2		20	49		28	59		7	49		26	17	0	0	13		23	46
8		4	57		12	54		21	41	6	29	49		8	45		27	34		1	37		24	45
12		5	47		13	45		22	32	7	0	39		9	40	9	28	52		3	0		25	44
16		6	38		14	36		23	24		1	30		10	36	10	0	11		4	24		26	43
20		7	28		15	27		24	15		2	20		11	33		1	30		5	46		27	41
24		8	19		16	19		25	7		3	10		12	29		2	49		7	8		28	39
28		9	9		17	10		25	58		4	0		13	26		4	10		8	29	1	29	37
32	3	9	59	4	18	2	5	26	50	7	4	51	8	14	23	10	5	31	0	9	50	2	0	34
36		10	50		18	53		27	41		5	41		15	21		6	52		11	11		1	31
40		11	40		19	45		28	33		6	32		16	19		8	14		12	30		2	27
44		12	30		20	36	5	29	24		7	22		17	17		9	37		3	49		3	24
48		13	21		21	28	6	0	15		8	13		18	16		11	0		5	8		4	20
52		14	11		22	19		1	6		9	3		19	15		12	23		16	26		5	15
56		15	1		23	11		1	58		9	54		20	14		13	47		17	43		6	11
	2h			5h			8h			11h			14h			17h			20h			23h		
0	3	15	52	4	24	3	6	2	49	7	10	44	8	21	14	10	15	12	0	19	0	2	7	6
4		16	42		24	55		3	40		11	35		22	14		16	37		20	16		8	1
8		17	32		25	46		4	31		12	26		23	14		18	2		21	31		8	55
12		18	23		26	38		5	22		13	17		24	16		19	28		22	46		9	50
16		19	13		27	30		6	13		14	8		25	17		20	55		24	0		10	44
20		20	3		28	21		7	4		14	58		26	19		22	21		25	14		11	38
24		20	54	4	29	13		7	55		15	49		27	21		23	48		26	27		12	32
28		21	44	5	0	5		8	46		16	41		28	24		25	15		27	39		13	25
32	3	22	34	5	0	57	6	9	37	7	17	32	8	29	27	10	26	43	0	28	50	2	14	19
36		23	25		1	49		10	28		18	23	9	0	31		28	10	1	0	1		15	12
40		24	15		2	41		11	19		19	14		1	36	10	29	38		1	12		16	5
44		25	6		3	32		12	9		20	6		2	40	11	1	6		2	22		16	57
48		25	56		4	24		13	0		20	57		3	46		2	35		3	31		17	50
52		26	47		5	16		13	51		21	49		4	52		4	3		4	40		18	42
56		27	37		6	8		14	42		22	41		5	58		5	32		5	48		19	35
60	3	28	28	5	7	0	6	15	32	7	23	33	9	7	5	11	7	0	1	6	55	2	20	27

Proportional Parts

Variation in 4 mins. :	1°—10'	1°—13'	1°—15'	1°—18'	1°—20'	1°—23'	1°—25'	1°—28'
Variation in 3 mins.	52'	55'	56'	58'	1 — 0'	1 — 2'	1 — 4'	1 — 6'
" " 2 mins.	35	37	38	39	40	42	43	44
" " 1 min.	18	18	19	20	20	21	21	22

Ascendant for LAHORE, Latitude 31°36' North

(Also for Amritsar 31°N38' etc.)

Minute	SIDEREAL TIME							
	0h	3h	6h	9h	12h	15h	18h	21h
	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '
0	2 20 46	3 28 39	5 7 0	6 15 21	7 23 14	9 6 44	11 7 0	1 7 16
4	21 38	3 29 29	7 51	16 12	24 26	7 52	8 29	8 23
8	22 29	4 0 19	8 43	17 2	24 59	9 0	9 58	9 30
12	23 21	1 10	9 35	17 53	25 51	10 9	11 27	10 36
16	24 12	2 1	10 27	18 43	26 44	11 18	12 56	11 41
20	25 3	2 51	11 18	19 33	27 36	12 28	14 26	12 46
24	25 55	3 42	12 10	20 23	28 29	13 39	15 54	13 51
28	26 46	4 32	13 1	21 13	7 29 22	14 50	17 22	14 54
32	2 27 37	4 5 23	5 13 53	6 22 3	8 0 15	9 16 2	11 18 51	1 15 58
36	28 28	6 13	14 45	22 53	1 8	17 14	20 19	17 1
40	2 29 19	7 4	15 36	23 44	2 2	18 27	21 46	18 3
44	3 0 9	7 55	16 28	24 34	2 56	19 41	23 13	19 5
48	1 0	8 46	17 19	25 24	3 50	20 55	24 40	20 6
52	1 51	9 37	18 10	26 14	4 45	22 10	26 7	21 7
56	2 41	10 28	19 2	27 4	5 39	23 26	27 33	22 8
	1h	4h	7h	10h	13h	16h	19h	22h
0	3 3 32	4 11 19	5 19 53	6 27 54	8 6 34	9 24 43	11 28 59	1 23 8
4	4 22	12 10	20 45	28 45	7 29	25 0	0 0 24	24 8
8	5 13	13 1	21 36	6 29 35	8 24	27 17	1 48	25 7
12	6 3	13 52	22 28	7 0 25	9 20	28 35	3 13	26 6
16	6 54	14 43	23 19	1 15	10 16	9 29 54	4 37	27 5
20	7 44	15 34	24 10	2 5	11 12	10 1 14	5 59	28 3
24	8 34	16 25	25 2	2 56	12 8	2 34	7 22	29 0
28	9 24	17 16	25 53	3 46	13 5	3 55	8 44	1 29 58
32	3 10 14	4 18 7	5 26 44	7 4 36	8 14 2	10 5 16	0 10 5	2 0 55
36	11 4	18 58	27 35	5 26	15 0	6 38	11 26	1 52
40	11 55	19 50	28 26	6 16	15 57	8 1	12 46	2 48
44	12 45	20 41	5 29 17	7 6	16 55	9 23	14 6	3 44
48	13 35	21 32	6 0 8	7 57	17 54	10 47	15 25	4 40
52	14 25	22 24	0 59	8 47	18 53	12 12	16 43	5 36
56	15 15	23 15	1 51	9 38	19 52	13 36	18 0	6 31
	2h	5h	8h	11h	14h	17h	20h	23h
0	3 16 6	4 24 7	6 2 42	7 10 28	8 20 52	10 15 1	0 19 17	2 7 26
4	16 56	24 58	3 32	11 19	21 52	16 27	20 34	8 21
8	17 46	25 50	4 23	12 9	22 53	17 53	21 50	9 15
12	18 36	26 41	5 14	13 0	23 54	19 20	23 5	10 9
16	19 26	27 32	6 5	13 51	24 55	20 47	24 19	11 4
20	20 16	28 24	6 56	14 41	25 57	22 14	25 33	11 58
24	21 7	4 29 15	7 47	15 32	26 59	23 41	26 46	12 52
28	21 57	5 0 7	8 37	16 23	28 2	25 9	27 58	13 45
32	3 22 47	5 0 59	6 9 28	7 17 14	8 29 5	10 26 38	0 29 10	2 14 38
36	23 37	1 50	10 18	18 5	9 0 9	28 6	1 0 21	15 31
40	24 27	2 42	11 9	18 57	1 14	10 29 35	1 32	16 24
44	25 17	3 33	11 59	19 48	2 19	11 1 4	2 42	17 16
48	26 7	4 25	12 50	20 39	3 24	2 33	3 51	18 9
52	26 58	5 17	13 41	21 31	4 30	4 2	5 0	19 1
56	27 48	6 9	14 31	22 22	5 37	5 31	6 8	19 54
60	3 28 39	5 7 0	6 15 21	7 23 14	9 6 44	11 7 0	1 7 16	2 20 46

Proportional Parts

Variation in 4 mins. :	0°—50'	0°—53'	0°—56'	0°—58'	1°—1'	1°—4'	1°—6'	1°—9'
Variation in 3 mins.	37'	40'	42'	43'	46'	48'	49'	52'
" " 2 mins.	25	27	28	29	31	32	33	35
" " 1 min.	13	13	14	15	15	16	17	17

Ascendant for Latitude 32°0' North

(For Gurdaspur 32°N03', Pathankot 32°N17' etc.)

Minute	SIDEREAL TIME																	
	0h			3h			6h			9h			12h			15h			18h			21h		
	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'
0	2	20	58	3	28	46	5	7	0	6	15	14	7	23	2	9	6	30	11	7	0	1	7	30
4		21	50	3	29	36		7	51		16	5		23	54		7	38		8	30		8	37
8		22	41	4	0	26		8	43		16	55		24	46		8	46		9	59		9	44
12		23	33		1	17		9	34		17	45		25	38		9	55		11	29		10	50
16		24	24		2	7		10	26		18	35		26	31		11	4		12	58		11	55
20		25	15		2	57		11	17		19	25		27	23		12	14		14	28		13	0
24		26	7		3	48		12	9		20	15		28	16		13	25		15	57		14	5
28		26	58		4	38		13	0		21	5	7	29	9		14	36		17	26		15	8
32	2	27	48	4	5	29	5	13	52	6	21	55	8	0	2	9	15	48	11	18	55	1	16	12
36		28	39		6	19		14	43		22	45		0	55		17	1		20	23		17	15
40	2	29	30		7	10		15	34		23	35		1	49		18	14		21	51		18	17
44	3	0	21		8	1		16	26		24	25		2	43		19	28		23	19		19	19
48		1	11		8	51		17	17		25	15		3	37		20	43		24	46		20	20
52		2	2		9	42		18	8		26	5		4	31		21	58		26	13		21	21
56		2	52		10	33		19	0		26	55		5	25		23	14		27	40		22	22
	1h			4h			7h			10h			13h			16h			19h			22h		
0	3	3	43	4	11	23	5	19	51	6	27	45	8	6	20	9	24	31	11	29	6	1	23	22
4		4	33		12	14		20	42		28	35		7	15		25	48	0	0	31		24	22
8		5	24		13	5		21	33	6	29	25		8	10		27	6		1	56		25	21
12		6	14		13	56		22	25	7	0	15		9	6		28	24		3	21		26	20
16		7	4		14	47		23	16		1	5		10	2	9	29	43		4	45		27	19
20		7	54		15	38		24	7		1	55		10	58	10	1	3		6	8		28	17
24		8	44		16	29		24	58		2	46		11	54		2	24		7	31	1	29	14
28		9	34		17	20		25	49		3	36		12	51		3	45		8	53	2	0	12
32	3	10	24	4	18	11	5	26	40	7	4	26	8	13	48	10	5	7	0	10	15	2	1	9
36		11	14		19	2		27	31		5	16		14	46		6	29		11	36		2	6
40		12	5		19	53		28	22		6	6		15	43		7	52		12	57		3	2
44		12	55		20	44	5	29	13		6	56		16	41		9	15		14	17		3	58
48		13	45		21	35	6	0	4		7	46		17	40		10	39		15	36		4	54
52		14	35		22	27		0	55		8	36		18	39		12	4		16	54		5	50
56		15	25		23	18		1	46		9	27		19	38		13	29		18	12		9	45
	2h			5h			8h			11h			14h			17h			20h			23h		
0	3	15	15	4	24	9	6	2	37	7	10	17	8	20	38	10	14	54	0	19	29	2	7	40
4		17	5		25	0		3	27		11	8		21	38		16	20		20	46		8	35
8		17	55		25	52		4	18		11	58		22	39		17	47		22	2		9	29
12		18	45		26	43		5	9		12	49		23	40		19	14		23	17		10	23
16		19	35		27	34		5	59		13	39		24	41		20	41		24	32		11	17
20		20	25		28	26		6	50		14	30		25	43		22	9		25	46		12	11
24		21	15	4	29	17		7	41		15	21		26	45		23	37		26	59		13	5
28		22	5	5	0	8		8	31		16	12		27	48		25	5		28	12		13	58
32	3	22	55	5	1	0	6	9	22	7	17	2	8	28	52	10	26	34	0	29	24	2	14	51
36		23	45		1	51		10	12		17	53	8	29	56		28	3	1	0	35		15	44
40		24	35		2	43		11	3		28	45	9	1	0	10	29	32		1	46		16	37
44		25	25		3	34		11	53		19	36		2	5	11	1	2		2	56		17	29
48		26	15		4	26		12	43		20	27		3	10		2	31		4	5		18	22
52		27	5		5	17		13	34		21	19		4	16		4	1		5	14		19	14
56		27	55		6	9		14	24		22	10		5	23		5	30		6	22		20	6
60	3	28	46	5	7	0	6	15	14	7	23	2	9	6	30	11	7	0	1	7	30	2	20	58

Proportional Parts

Variation in 4 mins. :	1°—11'	1°—14'	1°—16'	1°—19'	1°—21'	1°—24'	1°—27'	1°—30'
Variation in 3 mins.	53'	55'	57'	59'	1°—1'	1°—3'	1°—5'	1°—7'
" " 2 mins.	36	37	38	40	41	42	44	45
" " 1 min.	18	19	19	20	20	21	22	23

Ascendant for Latitude 33°0' North

(For Jammu 32°N43', Bannu 33°N0' etc.)

Minute	SIDEREAL TIME							
	0h	3h	6h	9h	12h	15h	18h	21h
	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '
0	2 21 29	3 29 4	5 7 0	6 14 56	7 22 31	9 5 54	11 7 0	1 8 6
4	22 21	3 29 54	7 51	15 46	23 22	7 2	8 31	9 13
8	23 12	4 0 44	8 42	16 36	24 14	8 10	10 2	10 20
12	24 4	1 34	9 33	17 26	25 6	9 19	11 33	11 26
16	24 55	2 24	10 24	18 16	25 58	10 29	13 4	12 32
20	25 46	3 14	11 15	19 5	26 51	11 39	14 34	13 37
24	26 37	4 4	12 6	19 55	27 43	12 50	16 5	14 41
28	27 27	4 54	12 57	20 45	28 36	14 2	17 35	15 45
32	2 28 18	4 5 44	5 13 48	6 21 35	7 29 29	9 15 14	11 19 5	1 16 48
36	29 9	6 34	14 39	22 24	8 0 22	16 27	20 35	17 51
40	2 29 59	7 24	15 30	23 14	1 15	17 41	22 4	18 54
44	3 0 50	8 15	16 21	24 4	2 9	18 55	23 33	19 56
48	1 40	9 5	17 12	24 53	3 3	20 10	25 2	20 57
52	2 30	9 55	18 3	25 43	3 57	21 26	26 30	21 58
56	3 20	10 46	18 54	26 33	4 51	22 42	27 57	22 59
	1h	4h	7h	10h	13h	16h	19h	22h
0	3 4 10	4 11 36	5 19 45	6 27 22	8 5 45	9 23 59	11 29 24	1 23 59
4	5 1	12 26	20 35	28 12	6 40	25 17	0 0 51	24 58
8	5 51	13 17	21 26	29 2	7 35	26 36	2 17	25 58
12	6 41	14 7	22 17	6 29 51	8 31	27 55	3 43	26 56
16	7 30	14 58	23 8	7 0 41	9 26	9 29 15	5 8	27 55
20	8 20	15 48	23 58	1 31	10 22	10 0 35	6 32	28 53
24	9 10	16 39	24 49	2 20	11 18	1 56	7 56	1 29 51
28	10 0	17 29	25 40	3 10	12 15	3 18	9 19	2 0 48
32	3 10 50	4 18 20	5 26 30	7 4 0	8 13 12	10 4 41	0 10 42	2 1 45
36	11 40	19 11	27 21	4 50	14 9	6 4	12 4	2 42
40	12 29	20 2	28 12	5 40	15 7	7 28	13 25	3 38
44	13 19	20 52	29 2	6 30	16 5	8 52	14 45	4 34
48	14 9	21 43	5 29 53	7 19	17 3	10 17	16 5	5 30
52	14 58	22 34	6 0 43	8 9	18 2	11 43	17 24	6 25
56	15 48	23 25	1 34	8 59	19 2	13 9	18 42	7 20
	2h	5h	8h	11h	14h	17h	20h	23h
0	3 16 38	4 24 15	6 2 24	7 9 50	8 20 1	10 14 36	0 20 0	2 8 15
4	17 27	25 6	3 14	10 40	21 1	16 3	21 17	9 9
8	18 17	25 57	4 5	11 30	22 2	17 30	22 34	10 3
12	19 7	26 48	4 55	12 20	23 3	18 58	23 50	10 57
16	19 56	27 39	5 45	13 10	24 4	20 27	25 5	11 51
20	20 46	28 30	6 36	14 1	25 6	21 56	26 19	12 45
24	21 36	4 29 21	7 26	14 51	26 9	23 25	27 33	13 38
28	22 25	5 0 12	8 16	15 42	27 12	24 55	28 46	14 31
32	3 23 15	5 1 3	6 9 6	7 16 33	8 28 18	10 26 25	0 29 58	2 15 24
36	24 5	1 54	9 56	17 23	8 29 19	27 55	1 1 10	16 17
40	24 55	2 45	10 46	18 14	9 0 23	10 29 26	2 21	17 9
44	25 44	3 36	11 36	19 5	1 28	11 0 56	3 31	18 2
48	26 34	4 27	12 26	19 56	2 34	2 27	4 41	18 54
52	27 24	5 18	13 16	20 48	3 40	3 58	5 50	19 46
56	28 14	6 9	14 6	21 39	4 47	5 29	6 58	20 38
60	3 29 4	5 7 0	6 14 56	7 22 31	9 5 54	11 7 0	1 8 6	2 21 29

Proportional Parts

Variation in 4 mins. :	0°—49'	0°—52'	0°—55'	0°—58'	1°—1'	1°—4'	1°—7'	1°—10'
Variation in 3 mins.	37'	39'	41'	43'	46'	48'	50'	52'
" " 2 mins.	25	26	28	29	31	32	34	35
" " 1 min.	12	13	14	15	15	16	17	18

Ascendant for Latitude 34°0' North

(For Peshawar 34°N01', Srinagar 34°N06' etc.)

Minute	SIDEREAL TIME							
	0h	3h	6h	9h	12h	15h	18h	21h
	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '
0	2 22 2	3 29 22	5 7 0	6 14 38	7 21 58	9 5 16	11 7 0	1 8 44
4	22 53	4 0 12	7 51	15 27	22 50	6 24	8 32	9 51
8	23 44	1 1	8 41	16 17	23 41	7 33	10 5	10 58
12	24 35	1 51	9 32	17 6	24 33	8 42	11 37	12 4
16	25 26	2 40	10 22	17 56	25 25	9 52	13 9	13 10
20	26 17	3 30	11 13	18 45	26 17	11 3	14 41	14 15
24	27 7	4 20	12 4	19 35	27 10	12 14	16 13	15 19
28	27 58	5 9	12 54	20 24	28 2	13 26	17 45	16 23
32	2 28 48	4 5 59	5 13 45	6 21 14	7 28 55	9 14 39	11 19 16	1 17 27
36	2 29 38	6 49	14 35	22 3	7 29 48	15 52	20 47	18 30
40	3 0 29	7 39	15 26	22 52	8 0 41	17 6	22 18	19 32
44	1 19	8 29	16 16	23 42	1 34	18 21	23 48	20 34
48	2 9	9 19	17 7	24 31	2 28	19 37	25 18	21 35
52	2 59	10 9	17 57	25 20	3 21	20 53	26 47	22 36
56	3 49	10 59	18 48	26 10	4 15	22 10	28 16	23 36
	1h	4h	7h	10h	13h	16h	19h	22h
0	3 4 39	4 11 48	5 19 38	6 26 59	8 5 10	9 23 27	11 29 44	1 24 36
4	5 28	12 38	20 28	27 48	6 4	24 46	0 1 12	25 36
8	6 18	13 29	21 19	28 38	6 59	26 5	2 39	26 35
12	7 8	14 19	22 9	6 29 27	7 54	27 25	4 5	27 34
16	7 57	15 9	23 0	7 0 16	8 50	9 28 45	5 31	28 32
20	8 47	15 59	23 50	1 6	9 46	10 0 6	6 57	1 29 30
24	9 36	16 49	24 40	1 55	10 42	1 28	8 21	2 0 28
28	10 26	17 39	25 31	2 45	11 38	2 51	9 46	1 25
32	3 11 15	4 18 29	5 26 21	7 3 34	8 12 35	10 4 14	0 11 9	2 2 22
36	12 5	19 20	27 11	4 24	13 32	5 39	12 32	3 18
40	12 54	20 10	28 1	5 13	14 30	7 3	13 54	4 14
44	13 44	21 0	28 51	6 3	15 28	8 29	15 15	5 10
48	14 33	21 51	5 29 41	6 52	16 26	9 55	16 35	6 6
52	15 22	22 41	6 0 31	7 42	17 25	11 21	17 55	7 1
56	16 12	23 32	1 22	8 32	18 24	12 48	19 14	7 56
	2h	5h	8h	11h	14h	17h	20h	23h
0	3 17 1	4 24 22	6 2 12	7 9 21	8 19 24	10 14 16	0 20 33	2 8 50
4	17 50	25 12	3 1	10 11	20 24	15 44	21 50	9 45
8	18 40	26 3	3 51	11 1	21 24	17 13	23 7	10 39
12	19 29	26 53	4 41	11 51	22 25	18 42	24 23	11 32
16	20 18	27 44	5 31	12 41	23 26	20 12	25 39	12 26
20	21 8	28 34	6 21	13 31	24 28	21 42	26 54	13 19
24	21 57	4 29 25	7 11	14 22	25 30	23 13	28 8	14 12
28	22 46	5 0 15	8 1	15 12	26 33	24 44	0 29 21	15 5
32	3 23 36	5 1 6	6 8 51	7 16 2	8 27 37	10 26 15	1 0 34	2 15 58
36	24 25	1 56	9 40	16 53	28 41	27 47	1 46	16 50
40	25 15	2 47	10 30	17 43	8 29 45	10 29 19	2 57	17 43
44	26 4	3 38	11 20	18 34	9 0 50	11 0 51	4 8	18 35
48	26 54	4 28	12 9	19 25	1 56	2 23	5 18	19 27
52	27 43	5 19	12 59	20 16	3 2	3 55	6 27	20 19
56	28 33	6 9	13 48	21 7	4 9	5 28	7 36	21 10
60	3 29 22	5 7 0	6 14 38	7 21 58	9 5 16	11 7 0	1 8 44	2 22 2

Proportional Parts

Variation in 4 mins. :	1°—12'	1°—15'	1°—17'	1°—20'	1°—23'	1°—26'	1°—29'	1°—32'
Variation in 3 mins.	54'	56'	58'	1°—0'	1°—2'	1°—4'	1°—7'	1°—9'
" " 2 mins.	36	38	39	40	42	43	45	46
" " 1 min.	18	19	19	20	21	22	22	23

Ascendant for Latitude 35°0' North

(For all places in or near 35°N. latitude)

Minute	SIDEREAL TIME							
	0h	3h	6h	9h	12h	15h	18h	21h
	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '
0	2 22 34	3 29 40	5 7 0	6 14 20	7 21 26	9 4 38	11 7 0	1 9 22
4	23 25	4 0 30	7 50	15 9	22 17	5 46	8 34	10 30
8	24 16	1 19	8 40	15 58	23 8	6 55	10 8	11 37
12	25 7	2 8	9 30	16 47	24 0	8 4	11 42	12 43
16	25 57	2 57	10 21	17 36	24 51	9 14	13 15	13 49
20	26 48	3 47	11 11	18 25	25 43	10 25	14 49	14 54
24	27 38	4 36	12 1	19 14	26 35	11 37	16 22	15 58
28	28 28	5 25	12 51	20 3	27 28	12 49	17 55	17 2
32	2 29 19	4 6 15	5 13 41	6 20 52	7 28 20	9 14 2	11 19 28	1 18 6
36	3 0 9	7 4	14 31	21 41	7 29 13	15 16	21 0	19 9
40	0 59	7 53	15 21	22 30	8 0 5	16 30	22 32	20 11
44	1 48	8 43	16 11	23 19	0 58	17 45	24 3	21 13
48	2 38	9 32	17 1	24 8	1 52	19 1	25 34	22 14
52	3 28	10 22	17 52	24 57	2 45	20 18	27 5	23 15
56	4 17	11 12	18 42	25 46	3 39	21 35	11 28 35	24 15
	1h	4h	7h	10h	13h	16h	19h	22h
0	3 5 7	4 12 1	5 19 32	6 26 35	8 4 33	9 22 54	0 0 5	1 25 15
4	5 56	12 51	20 22	27 24	5 28	24 13	1 34	26 15
8	6 46	13 40	21 12	28 13	6 22	25 32	3 2	27 14
12	7 35	14 30	22 2	29 2	7 17	26 53	4 29	28 12
16	8 25	15 20	22 52	6 29 51	8 13	28 14	5 56	29 10
20	9 14	16 10	23 41	7 0 41	9 8	9 29 36	7 23	0 8
24	10 3	16 59	24 31	1 30	10 4	10 0 59	8 48	1 6
28	10 52	17 49	25 21	2 19	11 1	2 22	10 13	2 3
32	3 11 41	4 18 39	5 26 11	7 3 8	8 11 57	10 3 47	0 11 38	2 2 59
36	12 30	19 29	27 1	3 57	12 54	5 12	13 1	3 56
40	13 19	20 19	27 51	4 46	13 52	6 37	14 24	4 52
44	14 9	21 9	28 40	5 35	14 50	8 4	15 46	5 47
48	14 58	21 58	5 29 30	6 25	15 48	9 31	17 7	6 43
52	15 47	22 48	6 0 20	7 14	16 46	10 58	18 28	7 38
56	16 36	23 38	1 9	8 4	17 45	12 26	19 47	8 32
	2h	5h	8h	11h	14h	17h	20h	23h
0	3 17 25	4 24 28	6 1 59	7 8 53	8 18 45	10 13 55	0 21 6	2 9 27
4	18 14	25 18	2 48	9 43	19 45	15 25	22 25	10 21
8	19 3	26 8	3 38	10 32	20 45	16 55	23 42	11 15
12	19 52	26 59	4 28	11 22	21 46	18 26	24 59	12 8
16	20 41	27 49	5 17	12 12	22 47	19 57	26 15	13 2
20	21 30	28 39	6 7	13 1	23 49	21 28	27 39	13 55
24	22 19	4 29 29	6 56	13 51	24 51	23 0	28 44	14 47
28	23 8	5 0 19	7 45	14 41	25 54	24 32	0 29 58	15 40
32	3 23 57	5 1 9	6 8 35	7 15 32	8 26 58	10 26 5	1 1 11	2 16 32
36	24 46	1 59	9 24	16 22	28 2	27 38	2 23	17 25
40	25 35	2 49	10 13	17 12	8 29 6	10 29 11	3 35	18 17
44	26 24	3 39	11 3	18 3	9 0 11	11 0 45	4 46	19 9
48	27 13	4 30	11 52	18 53	1 17	2 18	5 56	20 0
52	28 2	5 20	12 41	19 44	2 23	3 52	7 6	20 52
56	28 51	6 10	13 30	20 35	3 30	5 26	8 14	21 43
60	3 29 40	5 7 0	6 14 20	7 21 26	9 4 38	11 7 0	1 9 22	2 22 34

Proportional Parts

Variation in 4 mins. :	0°—49'	0°—52'	0°—55'	0°—58'	1°—1'	1°—4'	1°—7'	1°—10'
Variation in 3 mins.	37'	39'	41'	43'	46'	48'	50'	52'
" " 2 mins.	25	26	28	29	31	32	34	35
" " 1 min.	12	13	14	15	15	16	17	18

Ascendant for Latitude 36° 0 North

(For Tokyo 35°N40', Tehran 35°N41' etc.)

Minute	SIDEREAL TIME																							
	0h			3h			6h			9h			12h			15h			18h			21h		
	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'
0	2	23	8	3	29	59	5	7	0	6	14	1	7	20	52	9	3	57	11	7	0	1	10	3
4		23	58	4	0	48		7	50		14	50		21	43		5	6		8	35		11	10
8		24	49		1	37		8	39		15	38		22	34		6	15		10	11		12	17
12		25	39		2	26		9	29		16	27		23	26		7	24		11	46		13	24
16		26	30		3	14		10	19		17	16		24	17		8	35		13	22		14	30
20		27	20		4	3		11	9		18	5		25	9		9	46		14	57		15	35
24		28	10		4	52		11	58		18	53		26	0		10	58		16	31		16	39
28		29	0		5	41		12	48		19	42		26	52		12	10		18	6		17	43
32	2	29	50	4	6	30	5	13	38	6	20	31	7	27	44	9	13	23	11	19	40.	1	18	46
36	3	0	39		7	19		14	27		21	19		28	37		14	37		21	14		19	49
40		1	29		8	8		15	17		22	8	7	29	29		15	52		22	47		20	52
44		2	18		8	57		16	7		22	57	8	0	22		17	8		24	20		21	53
48		3	8		9	46		16	56		23	45		1	15		18	24		25	52		22	54
52		3	57		10	36		17	46		24	34		2	9		19	42		27	24		23	55
56		4	47		11	25		18	36		25	23		3	2		21	0	11	28	55		24	55
	1h			4h			7h			10h			13h			16h			19h			22h		
0	3	5	36	4	12	14	5	19	25	6	26	11	8	3	56	9	22	18	0	0	26	1	25	55
4		6	25		13	3		20	15		27	0		4	50		23	38		1	56		26	55
8		7	14		13	52		21	4		27	49		5	45		24	58		3	26		27	53
12		8	3		14	42		21	54		28	37		6	40		26	20		4	55		28	52
16		8	52		15	31		22	43	6	29	26		7	35		27	42		6	23	1	29	50
20		9	41		16	20		23	33	7	0	15		8	30	9	29	4		7	50	2	0	48
24		10	30		17	10		24	22		1	4		9	26	10	0	28		9	17		1	45
28		11	19		17	59		25	12		1	52		10	22		1	52		10	43		2	42
32	3	12	8	4	18	48	5	26	1	7	2	41	8	11	18	10	3	17	0	12	8	2	3	38
36		12	56		19	38		26	50		3	30		12	15		4	43		13	32		4	34
40		13	45		20	27		27	40		4	19		12	12		6	10		14	56		5	30
44		14	34		21	17		28	29		5	8		14	10		7	37		16	18		6	25
48		15	23		22	6	5	29	18		5	57		15	8		9	5		17	40		7	20
52		16	11		22	56	6	0	8		6	46		16	7		10	34		19	2		8	15
56		17	0		23	45		0	57		7	35		17	5		12	4		20	22		9	10
	2h			5h			8h			11h			14h			17h			20h			23h		
0	3	17	49	4	24	35	6	1	46	7	8	24	8	18	5	10	13	34	0	21	42	2	10	4
4		18	37		25	24		2	35		9	13		19	5		15	5		23	0		10	58
8		19	26		26	14		3	24		10	3		20	5		16	36		24	18		11	51
12		20	15		27	4		4	14		10	52		21	6		18	8		25	36		12	45
16		21	3		27	53		5	3		11	42		22	7		19	40		26	52		13	38
20		21	52		28	43		5	52		12	31		23	8		21	13		28	8		14	31
24		22	41	4	29	33		6	41		13	21		24	11		22	46	0	29	23		15	23
28		23	29	5	0	22		7	30		14	10		25	14		24	20	1	0	37		16	16
32	3	24	18	5	1	12	6	8	19	7	15	0	8	26	17	10	25	54	1	1	50	2	17	8
36		25	7		2	2		9	8		15	50		27	21		27	29		3	2		18	0
40		25	55		2	51		9	57		16	40		28	25	10	29	3		4	14		18	51
44		26	44		3	41		10	46		17	30	8	29	30	11	0	38		5	25		19	43
48		27	33		4	31		11	34		18	21	9	0	36		2	14		6	36		20	34
52		28	22		5	21		12	23		19	11		1	43		3	49		7	45		21	26
56		29	10		6	10		13	12		20	2		2	50		5	25		8	54		22	17
60	3	29	59	5	7	0	6	14	1	7	20	52	9	3	57	11	7	0	1	10	3	2	23	8

Proportional Parts

Variation in 4 mins. :	1°—12'	1°—15'	1°—18'	1°—20'	1°—23'	1°—26'	1°—29'	1°—32'	1°—35'
Variation in 3 mins.	54'	56'	58'	1°—0'	1°—2'	1°—4'	1°—7'	1°—9'	1°—11'
" " 2 mins.	36	38	39	40	42	43	45	46	48
" " 1 min.	18	19	20	20	21	22	22	23	24

Ascendant for Latitude 37° 0' North

(For all places in or Near 37°N Latitude)

Minute	SIDEREAL TIME							
	0h	3h	6h	9h	12h	15h	18h	21h
	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '
0	2 23 42	4 0 18	5 7 0	6 13 42	7 20 18	9 3 15	11 7 0	1 10 45
4	24 32	1 6	7 49	14 31	21 9	4 24	8 37	11 52
8	25 22	1 55	8 39	15 19	22 0	5 33	10 14	12 59
12	26 12	2 43	9 28	16 7	22 51	6 43	11 51	14 6
16	27 2	3 32	10 17	16 56	23 42	7 53	13 28	15 11
20	27 52	4 20	11 6	17 44	24 33	9 5	15 5	16 17
24	28 42	5 9	11 56	18 32	25 25	10 17	16 41	17 21
28	2 29 32	5 57	12 45	19 21	26 16	11 30	18 17	18 25
32	3 0 21	4 6 46	5 13 34	6 20 9	7 27 8	9 12 43	11 19 53	1 19 28
36	1 11	7 34	14 23	20 57	28 0	13 58	21 28	20 31
40	2 0	8 23	15 13	21 45	28 53	15 13	23 3	21 33
44	2 49	9 12	16 2	22 34	7 29 45	16 29	24 37	22 35
48	3 38	10 0	16 51	23 22	8 0 38	17 46	26 11	23 36
52	4 27	10 49	17 40	24 10	1 31	19 4	27 44	24 37
56	5 16	11 38	18 29	24 59	2 24	20 22	11 29 17	25 37
	1h	4h	7h	10h	13h	16h	19h	22h
0	3 6 5	4 12 27	5 19 19	6 25 47	8 3 18	9 21 41	0 0 49	1 26 36
4	6 54	13 15	20 8	26 35	4 12	23 2	2 21	27 36
8	7 43	14 4	20 57	27 24	5 6	24 23	3 51	28 34
12	8 31	14 53	21 46	28 12	6 1	25 45	5 21	1 29 33
16	9 20	15 42	22 35	29 0	6 56	27 7	6 50	2 0 30
20	10 9	16 31	23 24	6 29 49	7 51	28 31	8 19	1 28
24	10 57	17 20	24 13	7 0 37	8 46	9 29 55	9 46	2 25
28	11 46	18 9	25 2	1 26	9 42	10 1 20	11 13	3 22
32	3 12 34	4 18 58	5 25 51	7 2 14	8 10 38	10 2 47	0 12 40	2 4 18
36	13 23	19 47	26 40	3 3	11 35	4 14	14 5	5 14
40	14 11	20 36	27 29	3 51	12 32	5 41	15 29	6 9
44	15 0	21 25	28 18	4 40	13 30	7 10	16 53	7 4
48	15 48	22 14	29 7	5 29	14 27	8 39	18 15	7 59
52	16 36	23 3	5 29 56	6 17	15 26	10 9	19 37	8 54
56	17 25	23 52	6 0 45	7 6	16 24	11 39	20 58	9 48
	2h	5h	8h	11h	14h	17h	20h	23h
0	3 18 13	4 24 41	6 1 33	7 7 55	8 17 24	10 13 11	0 22 19	2 10 42
4	19 1	25 31	2 22	8 44	18 23	14 43	23 38	11 36
8	19 50	26 20	3 11	9 33	19 23	16 16	24 56	12 29
12	20 38	27 9	4 0	10 22	20 24	17 49	26 14	13 22
16	21 26	27 58	4 48	11 11	21 25	19 23	27 31	14 15
20	22 15	28 47	5 37	12 0	22 27	20 57	0 28 47	15 7
24	23 3	4 29 37	6 26	12 49	23 29	22 32	1 0 2	16 0
28	23 51	5 0 26	7 14	13 39	24 32	24 7	1 17	16 52
32	3 24 39	5 1 15	6 8 3	7 14 28	8 25 35	10 25 43	1 2 30	2 17 44
36	25 28	2 4	8 51	15 18	26 39	27 19	3 43	18 35
40	26 16	2 54	9 40	16 8	27 43	10 28 55	4 55	19 27
44	27 4	3 43	10 28	16 58	28 49	11 0 32	6 7	20 18
48	27 53	4 32	11 17	17 48	8 29 54	2 9	7 17	21 9
52	28 41	5 21	12 5	18 38	9 1 1	3 46	8 27	22 0
56	3 29 29	6 11	12 54	19 28	2 8	5 23	9 36	22 51
60	4 0 18	5 7 0	6 13 42	7 20 18	9 3 15	11 7 0	1 10 45	2 23 42

Proportional Parts

Variation in 4 mins. :	0°—48'	0°—51'	0°—54'	0°—57'	1°—0'	1°—3'	1°—6'	1°—9'	1°—12'
Variation in 3 mins.	36'	38'	40'	43'	45'	47'	49'	52'	54'
" " 2 mins.	24	26	27	29	30	32	33	35	36
" " 1 min.	12	13	14	14	15	16	17	17	18

Ascendant for Latitude 38° 0' North

(For Athens 37°N54', Melbourne 37°S50' San Francisco 37°N48' etc.)

Minute	SIDEREAL TIME																	
	0h			3h			6h			9h			12h			15h			18h			21h		
	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'
0	2	24	16	4	0	37	5	7	0	6	13	23	7	19	44	9	2	32	11	7	0	1	11	28
4		25	6		1	25		7	49		14	11		20	34		3	41		8	39		12	36
8		25	56		2	13		8	38		14	59		21	24		4	50		10	18		13	43
12		26	46		3	1		9	27		15	47		22	15		6	0		11	57		14	49
16		27	36		3	49		10	15		16	35		23	6		7	11		13	35		15	55
20		28	25		4	37		11	4		17	23		23	57		8	22		15	14		17	0
24	2	29	15		5	25		11	53		18	11		24	48		9	34		16	52		18	4
28	3	0	4		6	14		12	42		18	59		25	39		10	48		18	29		19	8
32	3	0	53	4	7	2	5	13	31	6	19	47	7	26	31	9	12	1	11	20	7	1	20	12
36		1	42		7	50		14	19		20	35		27	23		13	16		21	44		21	14
40		2	31		8	38		15	8		21	23		28	15		14	32		23	20		22	16
44		3	20		9	26		15	57		22	11	7	29	7		15	48		24	56		23	18
48		4	9		10	15		16	46		22	59	8	0	0		17	6		26	31		24	19
52		4	58		11	3		17	35		23	46		0	53		18	24		28	6		25	20
56		5	46		11	51		18	23		24	34		1	46		19	43	11	29	40		26	19
	1h			4h			7h			10h			13h			16h			19h			22h		
0	3	6	35	4	12	40	5	19	12	6	25	22	8	2	39	9	21	3	0	1	13	1	27	19
4		7	24		13	28		20	1		26	10		3	33		22	23		2	46		28	18
8		8	12		14	17		20	49		26	58		4	27		23	45		4	18	1	29	16
12		9	0		15	5		21	38		27	46		5	21		25	8		5	49	2	0	15
16		9	49		15	53		22	27		28	34		6	16		26	31		7	20		1	12
20		10	37		16	42		23	15	6	29	22		7	10		27	56		8	49		2	9
24		11	25		17	30		24	4	7	0	11		8	6	9	29	21		10	18		3	6
28		12	13		18	19		24	53		0	59		9	1	10	0	47		11	46		4	3
32	3	13	1	4	19	7	5	25	41	7	1	47	8	9	57	10	2	14	0	13	13	2	4	59
36		13	49		19	56		26	30		2	35		10	54		3	42		14	39		5	54
40		14	38		20	45		27	18		3	23		11	51		5	11		16	4		6	50
44		15	26		21	33		28	7		4	11		12	48		6	40		17	29		7	44
48		16	14		22	22		28	55		5	0		13	45		8	11		18	52		8	39
52		17	2		23	11	5	29	43		5	48		14	44		9	42		20	15		9	33
56		17	50		23	59	6	0	32		6	36		15	42		11	14		21	37		10	27
	2h			5h			8h			11h			14h			17h			20h			23h		
0	3	18	38	4	24	48	6	1	20	7	7	25	8	16	41	10	12	47	0	22	57	2	11	21
4		19	26		25	37		2	9		8	14		17	41		14	20		24	17		12	14
8		20	14		26	25		2	57		9	2		18	40		15	54		25	36		13	7
12		21	1		27	14		3	45		9	51		19	41		17	29		26	54		14	0
16		21	49		28	3		4	34		10	40		20	42		19	4		28	12		14	53
20		22	37		28	52		5	22		11	29		21	44		20	40	0	29	28		15	45
24		23	25	4	29	41		6	10		12	18		22	46		22	16	1	0	44		16	37
28		24	13	5	0	29		6	58		13	7		23	48		23	53		1	59		17	29
32	3	25	1	5	1	18	6	7	46	7	13	56	8	24	52	10	25	31	1	3	12	2	18	21
36		25	49		2	7		8	35		14	45		25	56		27	8		4	26		19	12
40		26	37		2	56		9	23		15	35		27	0	10	28	46		5	38		20	3
44		27	25		3	45		10	11		16	24		28	5	11	0	25		6	49		20	54
48		28	13		4	33		10	59		17	14	8	29	11		2	3		8	0		21	45
52		29	1		5	22		11	47		18	4	9	0	17		3	42		9	10		22	36
56	3	29	49		6	11		12	35		18	54		1	24		5	21		10	19		23	26
60	4	0	37	5	7	0	6	13	23	7	19	44	9	2	32	11	7	0	1	11	28	2	24	16

Proportional Parts

Variation in 4 mins. :	1°—15'	1°—18'	1°—21'	1°—24'	1°—27'	1°—30'	1°—33'	1°—36'	1°—39'
Variation in 3 mins.	56'	58'	1°—1'	1°—3'	1°—5'	1°—7'	1°—10'	1°—12'	1°—14'
" " 2 mins.	38	39	41	42	44	45	47	48	50
" " 1 min.	19	20	20	21	22	23	23	24	25

Ascendant for Latitude 39° 0' North

(For Lisbon 38°N44', Washington D.C. 38°N55' etc.)

Minute	SIDEREAL TIME							
	0h	3h	6h	9h	12h	15h	18h	21h
	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '
0	2 24 52	4 0 56	5 7 0	6 13 4	7 19 8	9 1 47	11 7 0	1 12 13
4	25 41	1 44	7 48	13 52	19 58	2 56	8 41	13 21
8	26 31	2 31	8 37	14 39	20 48	4 5	10 22	14 28
12	27 21	3 19	9 25	15 27	21 39	5 15	12 2	15 34
16	28 10	4 7	10 14	16 14	22 29	6 26	13 43	16 40
20	28 59	4 54	11 2	17 2	23 20	7 38	15 23	17 45
24	2 29 48	5 42	11 50	17 49	24 11	8 50	17 3	18 50
28	3 0 37	6 30	12 39	18 37	25 2	10 3	18 42	19 53
32	3 1 26	4 7 18	5 13 27	6 19 25	7 25 53	9 11 18	11 20 21	1 20 57
36	2 15	8 6	14 15	20 12	26 44	12 33	22 0	21 59
40	3 3	8 53	15 4	21 0	27 36	13 49	23 38	23 1
44	3 52	9 41	15 52	21 47	28 28	15 5	25 16	24 3
48	4 40	10 29	16 40	22 35	7 29 21	16 23	26 52	25 3
52	5 29	11 17	17 29	23 22	8 0 13	17 42	11 28 29	26 4
56	6 17	12 5	18 17	24 10	1 6	19 1	0 0 4	27 3
	1h	4h	7h	10h	13h	16h	19h	22h
0	3 7 5	4 12 53	5 19 5	6 24 57	8 1 59	9 20 22	0 1 39	1 28 3
4	7 54	13 41	19 54	25 45	2 52	21 43	3 13	1 29 2
8	8 42	14 29	20 42	26 33	3 46	23 6	4 47	2 0 0
12	9 30	15 17	21 30	27 20	4 40	24 29	6 19	0 58
16	10 18	16 5	22 18	28 8	5 34	25 53	7 51	1 55
20	11 6	16 53	23 6	28 56	6 29	27 18	9 21	2 52
24	11 53	17 41	23 55	6 29 43	7 24	9 28 45	10 51	3 49
28	12 41	18 29	24 43	7 0 31	8 19	10 0 12	12 20	4 45
32	3 13 29	4 19 17	5 25 31	7 1 19	8 9 15	10 1 40	0 13 48	2 5 41
36	14 17	20 5	26 19	2 7	10 11	3 9	15 15	6 36
40	15 4	20 54	27 7	2 54	11 8	4 39	16 42	7 31
44	15 52	21 42	27 55	3 42	12 5	6 9	18 7	8 26
48	16 40	22 30	28 43	4 30	13 2	7 41	19 31	9 20
52	17 27	23 18	5 29 31	5 18	14 0	9 13	20 54	10 14
56	18 15	24 6	6 0 19	6 6	14 58	10 47	22 17	11 8
	2h	5h	8h	11h	14h	17h	20h	23h
0	3 19 3	4 24 55	6 1 7	7 6 55	8 15 57	10 12 21	0 23 38	2 12 1
4	19 50	25 43	1 55	7 43	16 57	13 56	24 59	12 54
8	20 37	26 31	2 43	8 31	17 56	15 31	26 18	13 47
12	21 25	27 20	3 31	9 20	18 57	17 7	27 37	14 39
16	22 13	28 8	4 19	10 8	19 57	18 44	0 28 55	15 32
20	23 0	28 56	5 7	10 57	20 59	20 22	1 0 11	16 24
24	23 48	4 29 45	5 54	11 45	22 1	22 0	1 27	17 16
28	24 35	5 0 33	6 42	12 34	23 3	23 39	2 42	18 7
32	3 25 23	5 1 21	6 7 30	7 13 23	8 24 7	10 25 18	1 3 57	2 18 58
36	26 11	2 10	8 18	14 12	25 10	26 57	5 10	19 49
40	26 58	2 58	9 6	15 1	26 15	10 28 37	6 22	20 40
44	27 46	3 46	9 53	15 50	27 20	11 0 17	7 34	21 31
48	28 33	4 35	10 41	16 39	28 26	1 58	8 45	22 21
52	3 29 21	5 23	11 29	17 29	8 29 32	3 38	9 55	23 12
56	4 0 8	6 12	12 16	18 18	9 0 39	5 19	11 4	24 2
60	4 0 56	5 7 0	6 13 4	7 19 8	9 1 47	11 7 0	1 12 13	2 24 52

Proportional Parts

Variation in 4 mins. :	0°—48'	0°—51'	0°—54'	0°—57'	1°—0'	1°—3'	1°—6'	1°—9'	1°—12'
Variation in 3 mins.	36'	38'	40'	43'	45'	47'	49'	52'	54'
" " 2 mins.	24	26	27	29	30	32	33	35	36
" " 1 min.	12	13	14	14	15	16	17	17	18

TABLES OF ASCENDANTS

Ascendant for Latitude 40° 0' North

(For Beijing 39°N55', Philadelphia 39°N57' etc.)

Minute	SIDEREAL TIME								
	0h	3h	6h	9h	12h	15h	18h	21h	
	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	
0	2 25 28	4 1 16	5 7 0	6 12 44	7 18 32	9 1 0	11 7 0	1 13 0	
4	26 17	2 3	7 48	13 32	19 22	2 9	8 43	14 8	
8	27 7	2 50	8 36	14 19	20 12	3 18	10 26	15 15	
12	27 56	3 37	9 24	15 6	21 1	4 28	12 8	16 22	
16	28 45	4 25	10 12	15 53	21 52	5 39	13 51	17 27	
20	2 29 34	5 12	11 0	16 40	22 42	6 51	15 33	18 32	
24	3 0 22	5 59	11 48	17 27	23 32	8 4	17 14	19 36	
28	1 11	6 47	12 36	18 15	24 23	9 17	18 56	20 40	
32	3 2 0	4 7 34	5 13 24	6 19 2	7 25 14	9 10 32	11 20 37	1 21 43	
36	2 48	8 21	14 11	19 49	26 5	11 47	22 18	22 46	
40	3 36	9 9	14 59	20 36	26 57	13 3	23 57	23 47	
44	4 24	9 56	15 47	21 23	27 48	14 21	25 37	24 49	
48	5 12	10 44	16 35	22 10	28 40	15 39	27 15	25 49	
52	6 0	11 31	17 23	22 58	7 29 33	16 58	11 28 53	26 49	
56	6 48	12 19	18 11	23 45	8 0 25	18 18	0 0 30	27 49	
	1h	4h	7h	10h	13h	16h	19h	22h	
0	3 7 36	4 13 6	5 18 59	6 24 32	8 1 18	9 19 39	0 2 7	1 28 48	
4	8 24	13 54	19 46	25 19	2 11	21 1	3 42	1 29 47	
8	9 12	14 41	20 34	26 10	3 4	22 24	5 17	2 0 45	
12	9 59	15 29	21 22	26 54	3 58	23 48	6 51	1 42	
16	10 47	16 16	22 10	27 41	4 52	25 13	8 24	2 39	
20	11 35	17 4	22 58	28 28	5 46	26 39	9 56	3 36	
24	12 22	17 52	23 45	6 29 16	6 41	28 6	11 27	4 33	
28	13 10	18 39	24 33	7 0 3	7 36	9 29 34	12 57	5 28	
32	3 13 57	4 19 27	5 25 21	7 0 50	8 8 32	10 1 3	0 14 26	2 6 24	
36	14 44	20 15	26 8	1 38	9 27	2 33	15 54	7 19	
40	15 32	21 2	26 56	2 25	10 24	4 4	17 21	8 14	
44	16 19	21 50	27 44	3 13	11 21	5 36	18 47	9 8	
48	17 6	22 38	28 31	4 1	12 18	7 9	20 12	10 2	
52	17 54	23 26	5 29 19	4 48	13 15	8 43	21 36	10 56	
56	18 41	24 14	6 0 6	5 36	14 13	10 18	22 59	11 49	
	2h	5h	8h	11h	14h	17h	20h	23h	
0	3 19 28	4 25 1	6 0 54	7 6 24	8 15 12	10 11 53	0 24 21	2 12 42	
4	20 15	25 49	1 41	7 12	16 11	13 30	25 42	13 35	
8	21 2	26 37	2 29	8 0	17 11	15 7	27 2	14 27	
12	21 50	27 25	3 16	8 48	18 11	16 45	28 21	15 20	
16	22 37	28 13	4 4	9 36	19 11	18 23	0 29 39	16 12	
20	23 24	29 1	4 51	10 24	20 13	20 3	1 0 57	17 3	
24	24 11	4 29 49	5 39	11 12	21 14	21 42	2 13	17 55	
28	24 58	5 0 36	6 26	12 0	22 17	23 23	3 28	18 46	
32	3 25 45	5 1 24	6 7 13	7 12 49	8 23 20	10 25 4	1 4 43	2 19 37	
36	26 33	2 12	8 1	13 38	24 24	26 46	5 56	20 28	
40	27 20	3 0	8 48	14 25	25 28	10 28 27	7 9	21 18	
44	28 7	3 48	9 35	15 15	26 33	11 0 9	8 21	22 8	
48	28 54	4 36	10 23	16 4	27 38	1 52	9 32	22 59	
52	3 29 41	5 24	11 10	16 53	28 45	3 34	10 42	23 48	
56	4 0 28	6 12	11 57	17 43	8 29 52	5 17	11 51	24 38	
60	4 1 16	5 7 0	6 12 44	7 18 32	9 1 0	11 7 0	1 13 0	2 25 28	

Proportional Parts

Variation in 4 mins. :	1°—15'	1°—19'	1°—22'	1°—26'	1°—29'	1°—33'	1°—36'	1°—40'	1°—43'
Variation in 3 mins.	56'	59'	1°—1'	1°—4'	1°—7'	1°—10'	1°—12'	1°—15'	1°—17'
" " 2 mins.	38	40	41	43	45	47	48	50	52
" " 1 min.	19	20	21	22	22	23	24	25	26

Ascendant for Latitude 41°0' North

(For New York 40°N49', Naples 40°N51' etc.)

Minute	SIDEREAL TIME							
	0h	3h	6h	9h	12h	15h	18h	21h
	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '
0	2 26 5	4 1 35	5 7 0	6 12 25	7 17 55	9 0 11	11 7 0	1 13 49
4	26 54	2 22	7 47	13 11	18 44	1 19	8 45	14 57
8	27 43	3 9	8 35	13 58	19 34	2 29	10 30	16 4
12	28 32	3 56	9 22	14 45	20 23	3 39	12 15	17 10
16	2 29 20	4 43	10 10	15 32	21 13	4 50	13 59	18 16
20	3 0 9	5 30	10 57	16 19	22 3	6 2	15 43	19 21
24	0 57	6 17	11 45	17 5	22 53	7 15	17 27	20 25
28	1 45	7 3	12 32	17 52	23 44	8 29	19 11	21 29
32	3 2 34	4 7 50	5 13 20	6 18 39	7 24 34	9 9 44	11 20 54	1 22 31
36	3 22	8 37	14 7	19 26	25 25	10 59	22 36	23 34
40	4 10	9 24	14 55	20 12	26 16	12 16	24 18	24 35
44	4 57	10 11	15 42	20 59	27 7	13 33	25 59	25 36
48	5 45	10 58	16 30	21 46	27 59	14 52	27 40	26 37
52	6 33	11 45	17 17	22 33	28 51	16 12	11 29 19	27 37
56	7 20	12 32	18 4	23 19	7 29 43	17 32	0 0 58	28 36
	1h	4h	7h	10h	13h	16h	19h	22h
0	3 8 8	4 13 20	5 18 52	6 24 6	8 0 36	9 18 54	0 2 36	1 29 35
4	8 55	14 7	19 39	24 53	1 28	20 17	4 13	2 0 33
8	9 43	14 54	20 26	25 40	2 21	21 40	5 49	1 31
12	10 30	15 41	21 13	26 27	3 15	23 5	7 24	2 28
16	11 17	16 28	22 1	27 14	4 8	24 31	8 59	3 25
20	12 4	17 15	22 48	28 1	5 2	25 58	10 32	4 22
24	12 51	18 2	23 36	28 48	5 57	27 26	12 4	5 18
28	13 38	18 50	24 23	6 29 35	6 52	9 28 55	13 35	6 13
32	3 14 25	4 19 37	5 25 10	7 0 22	8 7 47	10 0 25	0 15 5	2 7 8
36	15 12	20 24	25 58	1 9	8 42	1 56	16 34	8 3
40	15 59	21 12	26 45	1 56	9 38	3 28	18 2	8 58
44	16 46	21 59	27 32	2 43	10 35	5 1	19 29	9 52
48	17 33	22 46	28 19	3 30	11 32	6 36	20 55	10 45
52	18 20	23 33	29 6	4 17	12 29	8 11	22 20	11 39
56	19 7	24 21	5 29 53	5 5	13 27	9 47	23 43	12 32
	2h	5h	8h	11h	14h	17h	20h	23h
0	3 19 54	4 25 8	6 0 40	7 5 52	8 14 25	10 11 24	0 25 6	2 13 24
4	20 41	25 56	1 28	6 40	15 24	13 2	26 28	14 17
8	21 27	26 43	2 15	7 27	16 23	14 41	27 48	15 9
12	22 14	27 30	3 2	8 15	17 23	16 20	0 29 8	16 1
16	23 1	28 18	3 49	9 3	18 24	18 1	1 0 27	16 52
20	23 48	29 5	4 36	9 50	19 25	19 42	1 44	17 44
24	24 34	4 29 53	5 23	10 38	20 26	21 24	3 1	18 35
28	25 21	5 0 40	6 10	11 26	21 29	23 6	4 16	19 26
32	3 26 8	5 1 28	6 6 57	7 12 15	8 22 31	10 24 49	1 5 31	2 20 16
36	26 55	2 15	7 43	13 3	23 35	26 33	6 45	21 7
40	27 41	3 3	8 30	13 51	24 39	10 28 17	7 58	21 57
44	28 28	3 50	9 17	14 40	25 44	11 0 1	9 10	22 47
48	3 29 15	4 38	10 4	15 28	26 50	1 45	10 21	23 37
52	4 0 2	5 25	10 51	16 17	27 56	3 30	11 31	24 26
56	0 49	6 12	11 38	17 6	8 29 3	5 15	12 41	25 16
60	4 1 35	5 7 0	6 12 25	7 17 55	9 0 11	11 7 0	1 13 49	2 26 5

Proportional Parts

Variation in 4 mins. :	0°—4'	0°—5'	0°—8'	0°—7'	1°—0'	1°—4'	1°—7'	1°—10'	1°—14'
Variation in 3 mins.	35'	37'	40'	43'	45'	48'	50'	52'	55'
" " 2 mins.	24	25	27	29	30	32	34	35	37
" " 1 min.	12	13	13	14	15	16	17	18	19

Ascendant for Latitude 42°0' North

(For Rome 41°N55', Chicago 41°N53' etc.)

Minute	SIDEREAL TIME							
	0h	3h	6h	9h	12h	15h	18h	21h
	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '
0	2 26 43	4 1 55	5 7 0	6 12 5	7 17 17	8 29 20	11 7 0	1 14 40
4	27 31	2 42	7 47	12 51	18 6	9 0 28	8 47	15 48
8	28 20	3 28	8 34	13 37	18 55	1 38	10 34	16 55
12	29 8	4 15	9 21	14 24	19 44	2 48	12 22	18 1
16	2 29 57	5 1	10 8	15 10	20 34	3 59	14 8	19 7
20	3 0 45	5 48	10 55	15 56	21 23	5 11	15 55	20 12
24	1 33	6 34	11 42	16 43	22 13	6 24	17 41	21 16
28	2 21	7 21	12 29	17 29	23 3	7 38	19 27	22 19
32	3 3 8	4 8 7	5 13 16	6 18 15	7 23 53	9 8 53	11 21 12	1 23 22
36	3 56	8 54	14 3	19 2	24 44	10 9	22 56	24 24
40	4 44	9 40	14 50	19 48	25 34	11 26	24 40	25 25
44	5 31	10 27	15 37	20 35	26 25	12 44	26 23	26 26
48	6 18	11 13	16 24	21 21	27 17	14 3	28 6	27 26
52	7 6	12 0	17 11	22 7	28 8	15 23	11 29 47	28 26
56	7 53	12 46	17 58	22 54	29 0	16 44	0 1 28	1 29 25
	1h	4h	7h	10h	13h	16h	19h	22h
0	3 8 40	4 13 33	5 18 45	6 23 40	7 29 52	9 18 6	0 3 7	2 0 23
4	9 27	14 20	19 32	24 27	8 0 44	19 29	4 46	1 21
8	10 14	15 7	20 19	25 13	1 37	20 54	6 24	2 19
12	11 1	15 53	21 6	25 59	2 30	22 19	8 0	3 16
16	11 48	16 40	21 53	26 46	3 24	23 46	9 36	4 12
20	12 34	17 27	22 39	27 32	4 17	25 14	11 10	5 9
24	13 21	18 13	23 26	28 19	5 11	26 43	12 44	6 4
28	14 8	19 0	24 13	29 6	6 6	28 13	14 16	6 59
32	3 14 54	4 19 47	5 25 0	6 29 52	8 7 1	9 29 44	0 15 47	2 7 54
36	15 41	20 34	25 47	7 0 39	7 56	10 1 16	17 17	8 49
40	16 28	21 21	26 33	1 26	8 51	2 50	18 46	9 43
44	17 14	22 8	27 20	2 12	9 48	4 24	20 14	10 36
48	18 1	22 54	28 7	2 59	10 44	6 0	21 41	11 30
52	18 47	23 41	28 53	3 46	11 41	7 36	23 6	12 23
56	19 33	24 28	5 29 40	4 33	12 39	9 14	24 31	13 16
	2h	5h	8h	11h	14h	17h	20h	23h
0	3 20 20	4 25 15	6 0 27	7 5 20	8 13 37	10 10 53	0 25 54	2 14 8
4	21 6	26 2	1 14	6 7	14 35	12 32	27 16	15 0
8	21 53	26 49	2 0	6 54	15 34	14 13	28 37	15 52
12	22 39	27 36	2 47	7 42	16 34	15 54	0 29 57	16 43
16	23 25	28 23	3 33	8 29	17 34	17 37	1 1 16	17 35
20	24 12	29 10	4 20	9 16	18 35	19 20	2 34	18 26
24	24 58	4 29 57	5 6	10 4	19 36	21 4	3 51	19 16
28	25 45	5 0 44	5 53	10 52	20 38	22 48	5 7	20 7
32	3 26 31	5 1 31	6 6 39	7 11 39	8 21 41	10 24 33	1 6 22	2 20 57
36	27 17	2 18	7 26	12 27	22 44	26 19	7 36	21 47
40	28 4	3 5	8 12	13 15	23 48	28 5	8 49	22 37
44	28 50	3 52	8 59	14 3	24 53	10 29 52	10 1	23 26
48	3 29 36	4 39	9 45	14 52	25 59	11 1 38	11 12	24 16
52	4 0 23	5 26	10 32	15 40	27 5	3 26	12 22	25 5
56	1 9	6 13	11 18	16 29	28 12	5 13	13 32	25 54
60	4 1 55	5 7 0	6 12 5	7 17 17	8 29 20	11 7 0	1 14 40	2 26 43

Proportional Parts

Variation in 4 mins. :	1°—17'	1°—21'	1°—25'	1°—28'	1°—32'	1°—36'	1°—40'	1°—43'	1°—47'
Variation in 3 mins.	58'	1°—1'	1°—4'	1°—6'	1°—9'	1°—12'	1°—15'	1°—17'	1°—20'
" " 2 mins.	39	41	43	44	46	48	50	52	54
" " 1 min.	19	20	21	22	23	24	25	26	27

Ascendant for Latitude 43°0' North

(For Sofia 42°N40', etc.)

Minute	SIDEREAL TIME							
	0h	3h	6h	9h	12h	15h	18h	21h
	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '
0	2 27 22	4 2 16	5 7 0	6 11 44	7 16 38	8 28 26	11 7 0	1 15 34
4	28 10	3 2	7 47	12 30	17 27	8 29 35	8 50	16 42
8	28 58	3 48	8 33	13 16	18 15	9 0 44	10 40	17 49
12	2 29 46	4 34	9 20	14 2	19 4	1 54	12 29	18 55
16	3 0 34	5 20	10 6	14 48	19 53	3 6	14 18	20 0
20	1 22	6 6	10 53	15 34	20 43	4 18	16 7	21 4
24	2 9	6 52	11 39	16 20	21 32	5 31	17 56	22 8
28	2 57	7 38	12 26	17 6	22 22	6 45	19 44	23 11
32	3 3 44	4 8 24	5 13 12	6 17 52	7 23 11	9 8 0	11 21 31	1 24 14
36	4 31	9 10	13 59	18 38	24 1	9 16	23 18	25 16
40	5 18	9 56	14 45	19 24	24 52	10 33	25 4	26 17
44	6 5	10 42	15 32	20 10	25 42	11 51	26 49	27 17
48	6 52	11 28	16 18	20 55	26 33	13 11	11 28 33	28 17
52	7 39	12 15	17 5	21 41	27 24	14 31	0 0 17	1 29 16
56	8 26	13 1	17 51	22 27	28 16	15 53	1 59	2 0 15
	1h	4h	7h	10h	13h	16h	19h	22h
0	3 9 13	4 13 47	5 18 38	6 23 13	7 29 7	9 17 16	0 3 41	2 1 13
4	9 50	14 33	19 24	23 59	7 29 59	18 39	5 21	2 11
8	10 46	15 19	20 11	24 45	8 0 52	20 4	7 0	3 8
12	11 32	16 6	20 57	25 32	1 44	21 31	8 39	4 5
16	12 19	16 52	21 44	26 18	2 37	22 58	10 16	5 1
20	13 5	17 38	22 30	27 4	3 31	24 27	11 52	5 57
24	13 51	18 25	23 16	27 50	4 24	25 57	13 26	6 52
28	14 38	19 11	24 3	28 36	5 18	27 28	15 0	7 47
32	3 15 24	4 19 57	5 24 49	6 29 22	8 6 13	9 29 0	0 16 32	2 8 42
36	16 10	20 43	25 35	7 0 9	7 8	10 0 34	18 3	9 36
40	16 56	21 30	26 22	0 55	8 3	2 8	19 33	10 29
44	17 42	22 16	27 8	1 41	8 59	3 44	21 2	11 23
48	18 28	23 3	27 54	2 28	9 55	5 21	22 29	12 16
52	19 15	23 49	28 41	3 14	10 52	7 0	23 56	13 8
56	20 1	24 36	5 29 27	4 1	11 49	8 39	25 21	14 1
	2h	5h	8h	11h	14h	17h	20h	23h
0	3 20 47	4 25 22	6 0 13	7 4 47	8 12 47	10 10 19	0 26 44	2 14 53
4	21 33	26 9	0 59	5 34	13 45	12 1	28 7	15 44
8	22 19	26 55	1 45	6 21	14 44	13 43	0 29 29	16 36
12	23 5	27 42	2 32	7 8	15 43	15 27	1 0 49	17 27
16	23 50	28 28	3 18	7 55	16 43	17 11	2 9	18 18
20	24 36	4 29 14	4 4	8 42	17 43	18 56	3 27	19 8
24	25 22	5 0 1	4 50	9 29	18 44	20 42	4 44	19 59
28	26 8	0 48	5 36	10 16	19 46	22 29	6 0	20 49
32	3 28 54	5 1 34	6 6 22	7 11 3	8 20 49	10 24 16	1 7 15	2 21 38
36	29 40	2 21	7 8	11 51	21 52	26 4	8 29	22 28
40	30 26	3 7	7 54	12 38	22 56	27 53	9 42	23 18
44	31 12	3 54	8 40	13 26	24 0	10 29 42	10 54	24 7
48	3 29 58	4 40	9 26	14 14	25 5	11 1 31	12 6	24 56
52	4 0 44	5 27	10 12	15 2	26 11	3 20	13 16	25 45
56	1 30	6 13	10 58	15 50	27 18	5 10	14 25	26 33
60	4 2 16	5 7 0	6 11 44	7 16 38	8 28 26	11 7 0	1 15 34	2 27 22

Proportional Parts

Variation in 4 mins. :	0°—46'	0°—49'	0°—52'	0°—56'	1°—0'	1°—4'	1°—8'	1°—12'	1°—15'
Variation in 3 mins.	34'	37'	39'	42'	45'	48'	51'	54'	57'
" " 2 mins.	23	25	26	28	30	32	34	36	38
" " 1 min.	12	12	13	14	15	16	17	18	19

Ascendant for Latitude 44°0' North

(For Toronto 43°N39', etc.)

Minute	SIDEREAL TIME																							
	0h			3h			6h			9h			12h			15h			18h			21h		
	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'
0	2	28	1	4	2	36	5	7	0	6	11	24	7	15	59	8	27	30	11	7	0	1	16	30
4		28	49		3	22		7	46		12	9		16	47		28	39		8	53		17	37
8	2	29	37		4	8		8	32		12	55		17	35	8	29	48		10	45		18	44
12	3	0	24		4	53		9	18		13	40		18	23	9	0	58		12	37		19	50
16		1	12		5	39		10	4		14	26		19	12		2	9		14	29		20	55
20		1	59		6	24		10	50		15	11		20	1		3	21		16	21		21	59
24		2	46		7	10		11	37		15	57		20	50		4	35		18	12		23	3
28		3	33		7	55		12	23		16	42		21	39		5	49		20	2		24	6
32	3	4	20	4	8	41	5	13	9	6	17	28	7	22	28	9	7	4	11	21	52	1	25	8
36		5	7		9	27		13	55		18	13		23	18		8	20		23	41		26	9
40		5	54		10	12		14	41		18	59		24	8		9	38		25	29		27	10
44		6	41		10	58		15	27		19	44		24	58		10	56		27	17		28	11
48		7	27		11	44		16	13		20	30		25	48		12	16	11	29	4	1	29	10
52		8	14		12	29		16	59		21	15		26	39		13	37	0	0	49	2	0	9
56		9	0		13	15		17	45		22	1		27	30		14	59		2	33		1	7
	1h			4h			7h			10h			13h			16h			19h			22h		
0	3	9	46	4	14	1	5	18	31	6	22	46	7	28	21	9	16	22	0	4	17	2	2	5
4		10	32		14	47		19	17		23	32	7	29	13		17	46		5	59		3	3
8		11	18		15	32		20	3		24	18	8	0	5		19	12		7	40		3	59
12		12	4		16	18		20	49		25	3		0	57		20	39		9	20		4	56
16		12	50		17	4		21	35		25	49		1	50		22	7		10	58		5	52
20		13	36		17	50		22	21		26	35		2	43		23	37		12	36		6	47
24		14	22		18	36		23	7		27	20		3	36		25	8		14	12		7	42
28		15	8		19	22		23	53		28	6		4	29		26	40		15	47		8	36
32	3	15	54	4	20	8	5	24	38	6	28	52	8	5	24	9	28	13	0	17	20	2	9	31
36		16	40		20	53		25	24	6	29	38		6	18	9	29	48		18	52		10	24
40		17	25		21	39		26	10	7	0	24		7	13	10	1	24		20	23		11	17
44		18	11		22	25		26	56		1	10		8	8		3	2		21	52		12	10
48		18	57		23	11		27	42		1	56		9	4		4	40		23	21		13	3
52		19	42		23	57		28	28		2	42		10	1		6	20		24	48		13	55
56		20	28		24	43		29	13		3	28		10	57		8	1		26	14		14	47
	2h			5h			8h			11h			14h			17h			20h			23h		
0	3	21	14	4	25	29	5	29	53	7	4	14	8	11	55	10	9	43	0	27	38	2	15	39
4		21	59		26	15	6	0	45		5	0		12	53		11	27	0	29	1		16	30
8		22	45		27	1		1	31		5	47		13	51		13	11	1	0	23		17	21
12		23	30		27	47		2	16		6	33		14	50		14	56		1	44		18	12
16		24	16		28	33		3	2		7	19		15	49		16	43		3	4		19	2
20		25	1	4	29	19		3	48		8	6		16	50		18	31		4	22		19	52
24		25	47	5	0	5		4	33		8	53		17	51		20	19		5	40		20	42
28		26	32		0	51		5	19		9	40		18	52		22	8		6	56		21	32
32	3	27	18	5	1	37	6	6	5	7	10	27	8	19	54	10	23	58	1	8	11	2	22	21
36		28	3		2	23		6	50		11	14		20	57		25	48		9	25		23	10
40		28	49		3	10		7	36		12	1		22	1		27	39		10	39		23	59
44	3	29	34		3	56		8	21		12	48		23	5	10	29	31		11	51		24	48
48	4	0	20		4	42		9	7		13	36		24	10	11	1	23		13	2		25	37
52		1	5		5	28		9	52		14	23		25	16		3	15		14	12		26	25
56		1	51		6	14		10	38		15	11		26	23		5	8		15	21		27	13
60	4	2	36	5	7	0	6	11	24	7	15	59	8	27	30	11	7	0	1	16	30	2	28	1

Proportional Parts

Variation in 4 mins. :	1°—18'	1°—22'	1°—27'	1°—31'	1°—36'	1°—40'	1°—44'	1°—48'	1°—52'
Variation in 3 mins.	58'	1°—1'	1°—5'	1°—8'	1°—12'	1°—15'	1°—18'	1°—21'	1°—24'
" " 2 mins.	39	41	44	46	48	50	52	54	56
" " 1 min.	20	21	22	23	24	25	26	27	28

Ascendant for Latitude 45°0' North

(For Belgrade 44°N50', Ottawa 45°N24' etc.)

Minute	SIDEREAL TIME							
	0h	3h	6h	9h	12h	15h	18h	21h
	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '
0	2 28 42	4 3 57	5 7 0	6 11 3	7 15 18	8 26 32	11 7 0	1 17 28
4	2 29 29	3 43	7 46	11 48	16 6	27 40	8 55	18 36
8	3 0 17	4 28	8 31	12 33	16 53	28 49	10 51	19 42
12	1 4	5 13	9 17	13 18	17 41	8 29 59	12 46	20 48
16	1 51	5 58	10 2	14 3	18 30	9 1 10	14 41	21 53
20	2 38	6 43	10 48	14 48	19 18	2 22	16 35	22 57
24	3 24	7 28	11 34	15 33	20 6	3 35	18 29	24 0
28	4 11	8 13	12 19	16 18	20 55	4 50	20 22	25 3
32	3 4 58	4 8 58	5 13 5	6 17 3	7 21 44	9 6 5	11 22 15	1 26 4
36	5 44	9 44	13 50	17 48	22 33	7 21	24 6	27 6
40	6 30	10 29	14 36	18 33	23 23	8 39	25 58	28 6
44	7 16	11 14	15 22	19 18	24 12	9 58	27 47	1 29 6
48	8 2	11 59	16 7	20 3	25 2	11 18	11 29 36	2 0 5
52	8 48	12 45	16 53	20 48	25 53	12 39	0 1 24	1 4
56	9 34	13 30	17 38	21 34	26 43	14 1	3 10	2 2
	1h	4h	7h	10h	13h	16h	19h	22h
0	3 10 20	4 14 15	5 18 24	6 22 19	7 27 34	9 15 25	0 4 56	2 2 59
4	11 6	15 0	19 9	23 4	28 25	16 50	6 40	3 56
8	11 52	15 46	19 55	23 49	7 29 16	18 16	8 23	4 52
12	12 37	16 31	20 40	24 34	8 0 8	19 44	10 4	5 48
16	13 23	17 16	21 26	25 20	1 0	21 13	11 44	6 44
20	14 8	18 2	22 11	26 5	1 53	22 44	13 23	7 39
24	14 53	18 47	22 57	26 50	2 46	24 16	15 1	8 33
28	15 39	19 33	23 42	27 35	3 39	25 49	16 37	9 27
32	3 16 25	4 20 18	5 24 27	6 28 21	8 4 33	9 27 23	0 18 11	2 10 21
36	17 10	21 3	25 13	29 6	5 27	9 28 59	19 44	11 14
40	17 55	21 49	25 58	6 29 52	6 21	10 0 37	21 16	12 7
44	18 40	22 34	26 44	7 0 37	7 16	2 15	22 47	13 0
48	19 26	23 20	27 29	1 23	8 12	3 56	24 16	13 52
52	20 11	24 5	28 14	2 8	9 7	5 37	25 44	14 43
56	20 56	24 51	29 0	2 54	10 4	7 20	27 10	15 35
	2h	5h	8h	11h	14h	17h	20h	23h
0	3 21 41	4 25 36	5 29 45	7 3 40	8 11 1	10 9 4	0 28 35	2 16 26
4	22 26	26 22	6 0 30	4 26	11 58	10 50	0 29 59	17 17
8	23 11	27 7	1 15	5 12	12 56	12 36	1 1 21	18 7
12	23 57	27 53	2 1	5 58	13 55	14 24	2 42	18 58
16	24 42	28 38	2 46	6 44	14 54	16 13	4 2	19 48
20	25 27	4 29 24	3 31	7 30	15 54	18 2	5 21	20 37
24	26 12	5 0 10	4 16	8 16	16 54	19 54	6 39	21 27
28	26 57	0 55	5 2	9 2	17 56	21 45	7 55	22 16
32	3 27 42	5 1 41	6 5 47	7 9 49	8 18 57	10 23 38	1 9 10	2 23 5
36	28 27	2 26	6 32	10 36	20 0	25 31	10 25	23 54
40	29 12	3 12	7 17	11 22	21 3	27 25	11 38	24 42
44	3 29 57	3 58	8 2	12 9	22 7	10 29 19	12 50	25 30
48	4 0 42	4 43	8 47	12 56	23 12	11 1 14	14 1	26 19
52	1 27	5 29	9 32	13 43	24 18	3 9	15 11	27 7
56	2 12	6 14	10 17	14 31	25 24	5 5	16 20	27 54
60	4 2 57	5 7 0	6 11 3	7 15 18	8 26 32	11 7 0	1 17 28	2 28 42

Proportional Parts

Variation in 4 mins. :	0°—44'	0°—47'	0°—50'	0°—54'	0°—58'	1°—2'	1°—6'	1°—11'	1°—15'
Variation in 3 mins.	33'	35'	37'	40'	43'	46'	49'	53'	56
" " 2 mins.	22	24	25	27	29	31	33	36	38
" " 1 min.	11	12	13	14	15	16	17	18	19

Ascendant for Latitude 46°0' North

(For Geneva 46°N12', etc.)

Minute	SIDEREAL TIME							
	0h	3h	6h	9h	12h	15h	18h	21h
	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '
0	2 29 24	4 3 19	5 7 0	6 10 41	7 14 36	8 25 30	11 7 0	1 18 30
4	3 0 11	4 3	7 45	11 26	15 23	26 38	8 59	19 37
8	0 58	4 48	8 30	12 10	16 11	27 47	10 57	20 43
12	1 44	5 33	9 15	12 55	16 58	8 28 57	12 56	21 48
16	2 31	6 17	10 0	13 40	17 46	9 0 8	14 54	22 53
20	3 17	7 2	10 46	14 24	18 34	1 20	16 51	23 57
24	4 3	7 47	11 31	15 9	19 22	2 33	18 48	25 0
28	4 50	8 31	12 16	15 53	20 10	3 47	20 44	26 2
32	3 5 36	4 9 16	5 13 1	6 16 38	7 20 59	9 5 3	11 22 40	1 27 3
36	6 22	10 1	13 46	17 23	21 47	6 19	24 34	28 4
40	7 7	10 46	14 31	18 7	22 36	7 37	26 28	1 29 4
44	7 53	11 30	15 16	18 52	23 25	8 56	11 28 20	2 0 4
48	8 39	12 15	16 1	19 37	24 15	10 16	0 0 12	1 2
52	9 24	13 0	16 46	20 21	25 5	11 38	2 2	2 1
56	10 10	13 45	17 31	21 6	25 55	13 0	3 50	2 58
	1h	4h	7h	10h	13h	16h	19h	22h
0	3 10 55	4 14 30	5 18 16	6 21 51	7 26 45	9 14 24	0 5 38	2 3 55
4	11 40	15 14	19 1	22 35	27 36	15 50	7 24	4 52
8	12 26	15 59	19 47	23 20	28 27	17 17	9 9	5 48
12	13 11	16 44	20 32	24 5	7 29 18	18 45	10 52	6 43
16	13 56	17 29	21 17	24 50	8 0 10	20 15	12 34	7 38
20	14 41	18 14	22 2	25 34	1 2	21 47	14 14	8 32
24	15 26	18 59	22 46	26 19	1 54	23 19	15 53	9 26
28	16 11	19 44	23 31	27 4	2 47	24 54	17 30	10 20
32	3 16 56	4 20 29	5 24 16	6 27 49	8 3 40	9 26 30	0 19 6	2 11 13
36	17 41	21 14	25 1	28 34	4 34	28 7	20 41	12 6
40	18 26	21 58	25 46	6 29 19	5 28	9 29 46	22 13	12 58
44	19 10	22 43	26 31	7 0 4	6 22	10 1 26	23 45	13 50
48	19 55	23 28	27 16	0 49	7 17	3 8	25 15	14 42
52	20 40	24 13	28 1	1 34	8 12	4 51	26 43	15 33
56	21 25	24 59	28 46	2 20	9 8	6 36	28 10	16 24
	2h	5h	8h	11h	14h	17h	20h	23h
0	3 22 9	4 25 44	5 29 30	7 3 5	8 10 5	10 8 22	0 29 36	2 17 15
4	22 54	26 29	6 0 15	3 50	11 2	10 10	1 1 0	18 5
8	23 39	27 14	1 0	4 36	11 59	11 58	2 22	18 55
12	24 23	27 59	1 45	5 21	12 58	13 48	3 44	19 45
16	25 8	28 44	2 30	6 7	13 56	15 40	5 4	20 35
20	25 53	4 29 29	3 14	6 53	14 56	17 32	6 23	21 24
24	26 37	5 0 14	3 59	7 38	15 56	19 26	7 41	22 13
28	27 22	0 59	4 44	8 24	16 57	21 20	8 57	23 1
32	3 28 7	5 1 44	6 5 29	7 9 10	8 17 58	10 23 16	1 10 13	2 23 50
36	28 51	2 29	6 13	9 57	19 0	25 12	11 27	24 38
40	3 29 36	3 14	6 58	10 43	20 3	27 9	12 40	25 26
44	4 0 20	4 0	7 43	11 29	21 7	10 29 6	13 52	26 14
48	1 5	4 45	8 27	12 16	22 12	11 1 4	15 3	27 2
52	1 50	5 30	9 12	13 2	23 17	3 3	16 13	27 49
56	2 34	6 15	9 57	13 49	24 23	5 1	17 22	28 37
60	4 3 19	5 7 0	6 10 41	7 14 36	8 25 30	11 7 0	1 18 30	2 29 24

Proportional Parts

Variation in 4 mins. :	1°—20'	1°—24'	1°—29'	1°—34'	1°—39'	1°—44'	1°—49'	1°—54'	1°—58'
Variation in 3 mins.	1°—0'	1°—3'	1°—7'	1°—10'	1°—14'	1°—18'	1°—22'	1°—25'	1°—28'
" " 2 mins.	40	42	45	47	50	52	55	57	59
" " 1 min.	20	21	22	24	25	26	27	29	30

Ascendant for Latitude 47°0' North

(For Quebec 46°N48', Berne 46°N55' etc.)

Minute	SIDEREAL TIME							
	0h	3h	6h	9h	12h	15h	18h	21h
	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '
0	3 0 7	4 3 41	5 7 0	6 10 19	7 13 53	8 24 26	11 7 0	1 19 34
4	0 53	4 25	7 45	11 4	14 40	25 33	9 2	20 41
8	1 30	5 9	8 29	11 48	15 27	26 42	11 5	21 47
12	2 26	5 53	9 14	12 32	16 14	27 52	13 6	22 52
16	3 12	6 37	9 59	13 16	17 1	8 29 3	15 8	23 56
20	3 58	7 21	10 43	14 0	17 48	9 0 14	17 9	24 59
24	4 43	8 6	11 28	14 44	18 36	1 27	19 9	26 2
28	5 29	8 50	12 12	15 28	19 24	2 41	21 8	27 4
32	3 6 15	4 9 34	5 12 57	6 16 13	7 20 12	9 3 57	11 23 6	1 28 5
36	7 0	10 18	13 42	16 57	21 0	5 13	25 4	1 29 5
40	7 45	11 3	14 26	17 41	21 48	6 31	27 1	2 0 5
44	8 31	11 47	15 11	18 25	22 37	7 50	11 28 56	1 4
48	9 16	12 31	15 55	19 9	23 26	9 11	0 0 50	2 2
52	10 1	13 15	16 40	19 53	24 15	10 32	2 43	3 0
56	10 46	14 0	17 25	20 38	25 5	11 55	4 34	3 57
	1h	4h	7h	10h	13h	16h	19h	22h
0	3 11 31	4 14 44	5 18 9	6 21 22	7 25 55	9 13 20	0 6 24	2 4 53
4	12 16	15 28	18 54	22 6	26 45	14 46	8 12	5 49
8	13 0	16 13	19 38	22 50	27 35	16 14	9 59	6 45
12	13 45	16 57	20 23	23 35	28 26	17 43	11 44	7 40
16	14 30	17 41	21 7	24 19	7 29 17	19 13	13 27	8 34
20	15 14	18 26	21 52	25 3	8 0 9	20 46	15 9	9 28
24	15 59	19 10	22 36	25 48	1 1	22 19	16 50	10 21
28	16 43	19 55	23 21	26 32	1 53	23 55	18 28	11 15
32	3 17 28	4 20 39	5 24 5	6 27 17	8 2 45	9 25 32	0 20 5	2 12 7
36	18 12	21 24	24 50	28 1	3 39	27 10	21 41	12 59
40	18 57	22 8	25 34	28 46	4 32	9 28 51	23 14	13 51
44	19 41	22 53	26 18	6 29 23	5 26	10 0 33	24 47	14 43
48	20 25	23 37	27 3	7 0 15	6 20	2 16	26 17	15 34
52	21 10	24 22	27 47	1 0	7 15	4 1	27 46	16 25
56	21 54	25 6	28 32	1 44	8 11	5 48	0 29 14	17 15
	2h	5h	8h	11h	14h	17h	20h	23h
0	3 22 38	4 25 51	5 29 16	7 2 29	8 9 7	10 7 36	1 0 40	2 18 5
4	23 22	26 35	6 0 0	3 14	10 3	9 26	2 5	18 55
8	24 7	27 20	0 45	3 59	11 0	11 16	3 28	19 45
12	24 51	28 5	1 29	4 44	11 58	13 10	4 49	20 34
16	25 35	28 49	2 13	5 29	12 56	15 4	6 10	21 23
20	26 19	4 29 34	2 57	6 15	13 55	16 59	7 29	22 12
24	27 3	5 0 18	3 42	7 0	14 55	18 56	8 47	23 0
28	27 47	1 3	4 26	7 45	15 55	20 53	10 3	23 48
32	3 28 32	5 1 48	6 5 10	7 8 31	8 16 56	10 22 52	1 11 19	2 24 36
36	3 29 16	2 32	5 54	9 17	17 58	24 51	12 33	25 24
40	4 0 0	3 17	6 39	10 2	19 1	26 51	13 46	26 12
44	0 44	4 1	7 23	10 48	20 4	10 28 52	14 57	26 59
48	1 23	4 46	8 7	11 34	21 8	11 0 54	16 8	27 46
52	2 12	5 31	8 51	12 21	22 13	2 55	17 18	28 33
56	2 56	6 15	9 35	13 7	23 19	4 58	18 27	2 29 20
60	4 3 41	5 7 0	6 10 19	7 13 53	8 24 26	11 7 0	1 19 34	3 0 7

Proportional Parts

Variation in 4 mins. :	0°—43'	0°—46'	0°—49'	0°—53'	0°—58'	1°—2'	1°—7'	1°—11'	1°—16'
Variation in 3 mins.	32'	34'	36'	40'	43'	46'	50'	53'	57'
" " 2 mins.	22	23	25	27	29	31	34	36	38
" " 1 min.	11	12	12	13	15	16	17	18	19

Ascendant for Latitude 48°0' North

(For Munich 48°N08', Vienna 48°N12', etc.)

Minute	SIDEREAL TIME																					
	0h			3h			6h			9h			12h			15h			18h			21h		
	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'
0	3	0	51	4	4	3	5	7	0	6	9	57	7	13	9	8	23	18	11	7	0	1	20	42
4		1	37		4	46		7	44		10	41		13	56		24	25		9	6		21	49
8		2	22		5	30		8	28		11	25		14	42		25	34		11	12		22	54
12		3	8		6	14		9	12		12	8		15	28		26	43		13	18		23	58
16		3	54		6	57		9	57		12	52		16	15		27	53		15	23		25	2
20		4	39		7	41		10	41		13	36		17	2	8	29	5		17	28		26	5
24		5	24		8	25		11	25		14	19		17	49	9	0	18		19	32		27	7
28		6	9		9	9		12	9		15	3		18	36		1	32		21	35		28	8
32	3	6	55	4	9	52	5	12	53	6	15	47	7	19	23	9	2	47	11	23	37	1	29	9
36		7	40		10	36		13	37		16	30		20	11		4	3		25	37	2	0	9
40		8	24		11	20		14	21		17	14		20	59		5	21		27	37		1	8
44		9	9		12	4		15	5		17	58		21	47		6	40	11	29	35		2	6
48		9	54		12	47		15	49		18	41		22	36		8	1	0	1	32		3	4
52		10	38		13	31		16	34		19	25		23	24		9	23		3	28		4	1
56		11	23		14	15		17	18		20	9		24	13		10	46		5	22		4	58
	1h			4h			7h			10h			13h			16h			19h			22h		
0	3	12	7	4	14	59	5	18	2	6	20	53	7	25	3	9	12	11	0	7	14	2	5	54
4		12	58		15	43		18	46		21	36		25	52		13	38		9	4		6	49
8		13	36		16	27		19	30		22	20		26	42		15	6		10	53		7	44
12		14	20		17	11		20	14		23	4		27	32		16	35		12	40		8	38
16		15	4		17	54		20	58		23	48		28	23		18	7		14	25		9	32
20		15	49		18	38		21	42		24	32	7	29	14		19	40		16	9		10	25
24		16	33		19	22		22	26		25	16	8	0	5		21	15		17	51		11	18
28		17	17		20	6		23	10		25	59		0	57		22	51		19	31		12	11
32	3	18	1	4	20	50	5	23	54	6	26	43	8	1	49	9	24	29	0	21	9	2	13	3
36		18	44		21	34		24	38		27	27		2	42		26	9		22	45		13	55
40		19	28		22	18		25	22		28	11		3	34		27	51		24	20		14	46
44		20	12		23	2		26	6		28	56		4	28	9	29	35		25	53		15	37
48		20	56		23	46		26	49	6	29	40		5	22	10	1	20		27	25		16	28
52		21	40		24	30		27	33	7	0	24		6	16		3	7	0	28	54		17	18
56		22	24		25	14	5	28	17		1	8		7	11		4	56	1	0	22		18	8
	2h			5h			8h			11h			14h			17h			20h			23h		
0	3	23	7	4	25	58	5	29	1	7	1	53	8	8	6	10	6	46	1	1	49	2	18	57
4		23	51		26	42	5	29	45		2	37		9	2		8	38		3	14		19	47
8		24	35		27	26	6	0	29		3	22		9	59		10	32		4	37		20	36
12		25	19		28	11		1	13		4	6		10	56		12	27		5	59		21	24
16		26	2		28	55		1	56		4	51		11	54		14	25		7	20		22	13
20		26	46	4	29	39		2	40		5	36		12	52		16	23		8	39		23	1
24		27	30	5	0	23		3	24		6	20		13	51		18	23		9	57		23	49
28		28	13		1	7		4	8		7	5		14	51		20	23		11	13		24	37
32	3	28	57	5	1	51	6	4	51	7	7	51	8	15	52	10	22	25	1	12	28	2	25	24
36	3	29	41		2	35		5	35		8	36		16	53		24	28		13	42		26	11
40	4	0	24		3	19		6	19		9	21		17	55		26	33		14	55		26	58
44		1	8		4	4		7	3		10	6		18	58	10	28	37		16	7		27	45
48		1	52		4	48		7	46		10	52		20	1	11	0	42		17	17		28	32
52		2	35		5	32		8	30		11	38		21	6		2	48		18	26	2	29	18
56		3	19		6	16		9	14		12	23		22	11		4	54		19	35	3	0	4
60	4	4	3	5	7	0	6	9	57	7	13	9	8	23	18	11	7	0	1	20	42	3	0	51

Proportional Parts

Variation in 4 mins. :	1°—21'	1°—26'	1°—32'	1°—37'	1°—43'	1°—48'	1°—54'	2°—0'	2°—6'
Variation in 3 mins.	1°—1'	1°—4'	1°—9'	1°—13'	1°—17'	1°—21'	1°—25'	1°—30'	1°—34'
" " 2 mins.	41	43	46	49	52	54	57	1°—0'	1°—3'
" " 1 min.	20	22	23	24	26	27	29	30	32

Ascendant for Latitude 49°0' North

(For Paris 48°N50', etc.)

Minute	SIDEREAL TIME							
	0h	3h	6h	9h	12h	15h	18h	21h
	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '
0	3 1 36	4 4 25	5 7 '0	6 09 35	7 12 24	8 22 7	11 7 0	1 21 53
4	2 21	5 8	7 44	10 18	13 10	23 14	9 10	22 59
8	3 7	5 52	8 27	11 1	13 56	24 21	11 21	24 4
12	3 52	6 35	9 11	11 44	14 41	25 30	13 31	25 8
16	4 37	7 18	9 54	12 28	15 27	26 41	15 40	26 11
20	5 22	8 1	10 38	13 11	16 14	27 52	17 49	27 14
24	6 6	8 44	11 22	13 54	17 0	8 29 4	19 57	28 15
28	6 51	9 28	12 5	14 37	17 47	9 0 18	22 4	29 16
32	3 7 36	4 10 11	5 12 49	6 15 20	7 18 34	9 1 33	11 24 10	2 0 16
36	8 20	10 54	13 33	16 3	19 21	2 49	26 14	1 15
40	9 4	11 37	14 16	16 47	20 8	4 7	11 28 17	2 14
44	9 49	12 21	15 0	17 30	20 56	5 26	0 0 19	3 11
48	10 33	13 4	15 43	18 13	21 44	6 46	2 19	4 8
52	11 17	13 47	16 27	18 56	22 32	8 9	4 17	5 5
56	12 1	14 31	17 10	19 39	23 20	9 32	6 14	6 1
	1h	4h	7h	10h	13h	16h	19h	22h
0	3 12 45	4 15 14	5 17 54	6 20 23	7 24 9	9 10 57	0 8 9	2 6 56
4	13 29	15 57	18 38	21 6	24 58	12 24	10 1	7 51
8	14 12	16 41	19 21	21 49	25 47	13 53	11 51	8 45
12	14 56	17 24	20 5	22 33	26 37	15 23	13 41	9 39
16	15 40	18 8	20 48	23 16	27 27	16 55	15 29	10 32
20	16 23	18 51	21 32	23 59	28 17	18 29	17 14	11 25
24	17 7	19 34	22 15	24 43	29 8	20 5	18 57	12 18
28	17 50	20 18	22 59	25 26	29 59	21 42	20 38	13 10
32	3 18 34	4 21 1	5 23 42	6 26 10	8 0 50	9 23 21	0 22 18	2 14 1
36	19 17	21 45	24 26	26 53	1 42	25 3	23 55	14 52
40	20 1	22 28	25 9	27 37	2 35	26 46	25 31	15 43
44	20 44	23 12	25 52	28 20	3 28	9 28 31	27 5	16 33
48	21 27	23 55	26 36	29 4	4 21	10 0 19	0 28 37	17 23
52	22 11	24 39	27 19	6 29 48	5 15	2 8	1 0 7	18 13
56	22 54	25 22	28 2	7 0 31	6 9	3 59	1 36	19 2
	2h	5h	8h	11h	14h	17h	20h	23h
0	3 23 37	4 26 6	5 28 46	7 1 15	8 7 4	10 5 51	1 3 3	2 19 51
4	24 21	26 50	5 29 29	1 59	7 59	7 46	4 28	20 40
8	25 4	27 33	6 0 13	2 43	8 55	9 43	5 51	21 28
12	25 47	28 17	0 56	3 27	9 52	11 41	7 13	22 16
16	26 30	29 0	1 39	4 11	10 49	13 41	8 34	23 4
20	27 13	4 29 44	2 23	4 56	11 46	15 43	9 53	23 52
24	27 57	5 0 27	3 6	5 40	12 45	17 46	11 11	24 39
28	28 40	1 11	3 49	6 24	13 44	19 50	12 27	25 26
32	3 29 23	5 1 55	6 4 32	7 7 9	8 14 44	10 21 56	1 13 42	2 26 13
36	4 0 6	2 38	5 16	7 54	15 45	24 3	14 56	27 0
40	0 49	3 22	5 59	8 38	16 46	26 11	16 8	27 46
44	1 32	4 6	6 42	9 23	17 49	10 28 20	17 19	28 33
48	2 16	4 49	7 25	10 8	18 52	11 0 29	18 30	2 29 18
52	2 59	5 33	8 8	10 53	19 56	2 39	19 39	3 0 4
56	3 42	6 16	8 52	11 39	21 0	4 50	20 46	0 50
60	4 4 25	5 7 0	6 9 35	7 12 24	8 22 7	11 7 0	1 21 53	3 1 36

Proportional Parts

Variation in 4 mins. :	0°—42'	0°—45'	0°—48'	0°—52'	0°—57'	1°—2'	1°—7'	1°—12'	1°—17'
Variation in 3 mins.	31'	34'	36'	39'	43'	46'	50'	54'	58'
" " 2 mins.	21	23	24	26	29	31	34	36	39
" " 1 min.	11	11	12	13	14	16	17	18	19

Ascendant for Latitude 50°0' North

(For Prague 50°N05', etc.)

Minute	SIDEREAL TIME							
	0h	3h	6h	9h	12h	15h	18h	21h
	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '
0	3 2 22	4 4 48	5 7 0	6 9 12	7 11 38	8 20 51	11 7 0	1 23 9
4	3 7	5 31	7 48	9 55	12 23	21 58	9 15	24 14
8	3 52	6 13	8 26	10 37	13 8	23 5	11 30	25 18
12	4 37	6 56	9 9	11 20	13 53	24 14	13 45	26 22
16	5 21	7 39	9 52	12 2	14 39	25 23	16 0	27 24
20	6 5	8 22	10 36	12 45	15 24	26 34	18 13	28 26
24	6 50	9 4	11 19	13 28	16 10	27 46	20 25	1 29 27
28	7 34	9 47	12 2	14 11	16 56	8 29 0	22 36	2 0 27
32	3 8 18	4 10 30	5 12 45	6 14 53	7 17 43	9 0 14	11 24 46	2 1 26
36	9 1	11 13	13 28	15 36	18 29	1 30	26 54	2 24
40	9 45	11 55	14 11	16 19	19 16	2 48	11 29 1	3 22
44	10 29	12 38	14 54	17 1	20 3	4 7	0 1 7	4 19
48	11 13	13 21	15 37	17 44	20 50	5 27	3 10	5 16
52	11 56	14 4	16 20	18 27	21 38	6 49	5 12	6 12
56	12 40	14 47	17 3	19 9	22 25	8 13	7 11	7 7
	1h	4h	7h	10h	13h	16h	19h	22h
0	3 13 23	4 15 29	5 17 46	6 19 52	7 23 13	9 9 38	0 9 9	2 8 2
4	14 6	16 12	18 29	20 35	24 2	11 5	11 4	8 56
8	14 50	16 55	19 12	21 18	24 51	12 34	12 57	9 49
12	15 33	17 38	19 55	22 1	25 39	14 5	14 49	10 43
16	16 16	18 21	20 38	22 43	26 29	15 38	16 38	11 35
20	16 59	19 4	21 21	23 26	27 18	17 12	18 25	12 27
24	17 42	19 47	22 4	24 9	28 9	18 49	20 9	13 19
28	18 25	20 30	22 47	24 52	28 59	20 27	21 52	14 10
32	3 19 8	4 21 13	5 23 30	6 25 35	7 29 50	9 22 8	0 23 33	2 15 1
36	19 51	21 56	24 13	26 18	8 0 41	23 51	25 11	15 51
40	20 34	22 39	24 56	27 1	1 33	25 35	26 48	16 42
44	21 17	23 22	25 39	27 44	2 25	27 22	28 22	17 31
48	21 59	24 5	26 22	28 27	3 17	9 29 11	0 29 55	18 21
52	22 42	24 48	27 5	29 10	4 11	10 1 3	1 1 26	19 9
56	23 25	25 31	27 48	6 29 54	5 4	2 56	2 55	19 58
	2h	5h	8h	11h	14h	17h	20h	23h
0	3 24 8	4 26 14	5 28 30	7 0 37	8 5 58	10 4 51	1 4 22	2 20 47
4	24 51	26 57	29 13	1 20	6 53	6 49	5 47	21 35
8	25 33	27 40	5 29 56	2 4	7 48	8 48	7 11	22 22
12	26 16	28 23	6 0 39	2 47	8 44	10 50	8 33	23 10
16	26 59	29 6	1 22	3 31	9 41	12 53	9 53	23 57
20	27 41	4 29 49	2 5	4 15	10 38	14 58	11 12	24 44
24	28 24	5 0 32	2 47	4 59	11 30	17 6	12 30	25 31
28	29 7	1 15	3 30	5 42	12 34	19 14	13 46	26 18
32	3 29 49	5 1 58	6 4 13	7 6 26	8 13 33	10 21 24	1 15 0	2 27 4
36	4 0 32	2 41	4 56	7 10	14 33	23 35	16 14	27 50
40	1 15	3 24	5 38	7 55	15 34	25 47	17 26	28 36
44	1 58	4 8	6 21	8 39	16 36	10 28 0	18 37	2 29 21
48	2 40	4 51	7 4	9 23	17 38	11 0 15	19 46	3 0 7
52	3 23	5 34	7 46	10 8	18 42	2 30	20 55	0 52
56	4 5	6 17	8 29	10 53	19 46	4 45	22 2	1 37
60	4 4 48	5 7 0	6 9 12	7 11 38	8 20 51	11 7 0	1 23 9	3 2 22

Proportional Parts

Variation in 4 mins. :	1°—22'	1°—28'	1°—35'	1°—41'	1°—48'	1°—54'	2°—1'	2°—8'	2°—15'
Variation in 3 mins.	1°—1'	1°—6'	1°—11'	1°—16'	1°—21'	1°—25'	1°—31'	1°—36'	1°—41'
" " 2 mins.	41	44	48	51	54	57	1 — 1	1 — 4	1 — 8
" " 1 min.	21	22	24	25	27	29	30	32	34

Ascendant for Latitude 51°0' North

(For Bonn 50°N44' etc.)

Minute	SIDEREAL TIME							
	0h	3h	6h	9h	12h	15h	18h	21h
	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '
0	3 3 10	4 5 12	5 7 0	6 8 48	7 10 50	8 19 32	11 7 0	1 24 28
4	3 54	5 54	7 43	9 31	11 34	20 38	9 21	25 32
8	4 39	6 36	8 25	10 13	12 19	21 45	11 41	26 36
12	5 23	7 18	9 8	10 55	13 3	22 53	14 2	27 39
16	6 6	8 0	9 50	11 37	13 48	24 2	16 21	28 41
20	6 50	8 43	10 33	12 19	14 33	25 12	18 39	1 29 41
24	7 34	9 25	11 16	13 1	15 19	26 24	20 57	2 0 42
28	8 17	10 7	11 58	13 43	16 4	27 36	23 13	1 41
32	3 9 1	4 10 49	5 12 41	6 14 26	7 16 50	8 28 51	11 25 27	2 2 39
36	9 44	11 31	13 23	15 8	17 36	9 0 6	27 40	3 37
40	10 27	12 14	14 6	15 50	18 22	1 23	11 29 51	4 34
44	11 10	12 56	14 48	16 32	19 8	2 42	0 2 0	5 31
48	11 53	13 38	15 31	17 14	19 55	4 2	4 7	6 26
52	12 36	14 20	16 13	17 56	20 42	5 24	6 12	7 21
56	13 19	15 3	16 56	18 39	21 29	6 48	8 15	8 16
	1h	4h	7h	10h	13h	16h	19h	22h
0	3 14 2	4 15 45	5 17 38	6 19 21	7 22 16	9 8 13	0 10 15	2 9 10
4	14 45	16 27	18 21	20 3	23 4	9 41	12 13	10 3
8	15 28	17 10	19 3	20 45	23 52	11 10	14 9	10 56
12	16 10	17 52	19 46	21 28	24 40	12 41	16 2	11 48
16	16 53	18 35	20 28	22 10	25 29	14 14	17 53	12 40
20	17 36	19 17	21 11	22 52	26 18	15 49	19 42	13 32
24	18 18	19 59	21 53	23 35	27 7	17 26	21 28	14 23
28	19 1	20 42	22 36	24 17	27 57	9 19 6	23 12	15 13
32	3 19 43	4 21 24	5 23 18	6 24 59	7 28 47	9 20 48	0 24 54	2 16 3
36	20 25	22 7	24 1	25 42	7 29 37	22 32	26 34	16 53
40	21 8	22 49	24 43	26 24	8 0 28	24 18	28 11	17 42
44	21 50	23 32	25 25	27 7	1 20	26 7	0 29 46	18 31
48	22 32	24 14	26 8	27 50	2 12	27 58	1 1 19	19 20
52	23 15	24 57	26 50	28 32	3 4	9 29 51	2 50	20 8
56	23 57	25 39	27 32	29 15	3 57	10 1 47	4 19	20 56
	2h	5h	8h	11h	14h	17h	20h	23h
0	3 24 39	4 26 22	5 28 15	6 29 58	8 4 50	10 3 45	1 5 47	2 21 44
4	25 21	27 4	28 57	7 0 41	5 44	5 45	7 12	22 31
8	26 4	27 47	5 29 40	1 23	6 39	7 48	8 36	23 18
12	26 46	28 29	6 0 22	2 6	7 34	9 53	9 58	24 5
16	27 28	29 12	1 4	2 50	8 29	12 0	11 18	24 52
20	28 10	4 29 54	1 46	3 33	9 26	14 9	12 37	25 38
24	28 52	5 0 37	2 29	4 16	10 23	16 20	13 54	26 24
28	3 29 34	1 19	3 11	4 59	11 21	18 33	15 9	27 10
32	4 0 16	5 2 2	6 3 53	7 5 43	8 12 19	10 20 47	1 16 24	2 27 56
36	0 59	2 44	4 53	6 26	13 18	23 3	17 36	28 41
40	1 41	3 27	5 17	7 10	14 19	25 21	18 48	2 29 27
44	2 23	4 10	6 0	7 54	15 19	27 39	19 58	3 0 12
48	3 5	4 52	6 42	8 37	16 21	10 29 58	21 7	0 57
52	3 47	5 35	7 24	9 21	17 24	11 2 19	22 15	1 41
56	4 29	6 17	8 6	10 6	18 28	4 39	23 22	2 26
60	4 5 12	5 7 0	6 8 48	7 10 50	8 19 32	11 7 0	1 24 28	3 3 10

Proportional Parts

Variation in 4 mins. :	0°—42'	0°—45'	0°—49'	0°—54'	0°—59'	1°—4'	1°—9'	1°—14'	1°—19'
Variation in 3 mins.	31'	34'	37'	40'	44'	48'	52'	55'	59'
" " 2 mins.	21	23	25	27	30	32	35	37	40
" " 1 min.	11	11	12	14	15	16	17	19	20

Ascendant for LONDON, Latitude 51°32' North

(Also for Leipzig 51°N20', etc.)

Minute	SIDEREAL TIME							
	0h	3h	6h	9h	12h	15h	18h	21h
	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '
0	3 3 36	4 5 25	5 7 0	6 8 35	7 10 24	8 18 50	11 7 0	1 25 10
4	4 20	6 6	7 42	9 18	11 8	19 55	9 25	26 14
8	5 4	6 48	8 24	10 0	11 53	21 2	11 48	27 18
12	5 47	7 30	9 7	10 41	12 37	22 9	14 12	28 20
16	6 30	8 12	9 49	11 23	13 22	13 18	16 34	1 29 22
20	7 14	8 54	10 31	12 5	14 6	24 28	18 55	2 0 23
24	7 57	9 36	11 13	12 47	14 52	25 39	21 16	1 22
28	8 40	10 18	11 55	13 29	15 36	26 51	23 34	2 20
32	3 9 24	4 11 0	5 12 38	6 14 11	7 16 22	8 28 6	11 25 51	2 3 18
36	10 7	11 42	13 20	14 53	17 8	8 29 21	11 28 6	4 16
40	10 50	12 24	14 2	15 35	17 53	9 0 37	0 0 20	5 12
44	11 32	13 6	14 44	16 16	18 39	1 56	2 31	6 9
48	12 16	13 48	15 37	16 58	19 26	3 16	4 40	7 4
52	12 58	14 30	16 9	17 40	20 12	4 38	6 47	7 58
56	13 40	15 12	16 51	18 22	20 59	6 2	8 51	8 53
	1h	4h	7h	10h	13h	16h	19h	22h
0	3 14 23	4 15 54	5 17 33	6 19 4	7 21 46	9 7 27	0 10 53	2 9 46
4	15 6	16 36	18 16	19 46	22 33	8 54	12 52	10 39
8	15 48	17 18	18 58	20 28	23 21	10 23	14 49	11 31
12	16 30	18 0	19 40	21 10	24 8	11 55	16 43	12 23
16	17 13	18 42	20 22	21 52	24 57	13 28	18 36	13 15
20	17 55	19 24	21 5	22 34	25 46	15 3	20 25	14 6
24	18 37	20 6	21 47	23 16	26 34	16 41	22 12	14 57
28	19 20	20 49	22 29	23 58	27 24	18 21	23 57	15 47
32	3 20 2	4 21 31	5 23 11	6 24 40	7 28 13	9 20 3	0 25 39	2 16 36
36	20 44	22 13	23 54	25 23	29 3	21 48	27 19	17 26
40	21 26	22 55	24 36	26 5	7 29 54	23 35	0 28 57	18 14
44	22 8	23 38	25 18	26 47	8 0 45	25 24	1 0 32	19 3
48	22 50	24 20	26 0	27 30	1 37	27 17	2 5	19 52
52	23 32	25 2	26 42	28 12	2 29	9 29 11	3 37	20 39
56	24 14	25 44	27 24	28 54	3 21	10 1 8	5 6	21 27
	2h	5h	8h	11h	14h	17h	20h	23h
0	3 24 56	4 26 27	5 28 6	6 29 37	8 14 14	10 3 7	1 6 33	2 22 14
4	25 38	27 9	28 48	7 0 20	5 7	5 9	7 58	23 1
8	26 20	27 51	5 29 30	1 2	6 2	7 13	9 22	23 48
12	27 2	28 33	6 0 12	1 44	6 56	9 20	10 44	24 34
16	27 44	29 16	0 54	2 28	7 51	11 29	12 4	25 21
20	28 25	4 29 58	1 36	3 10	8 48	13 40	13 23	26 7
24	29 7	5 0 40	2 18	3 53	9 44	15 54	14 39	26 52
28	3 29 49	1 22	3 0	4 36	10 42	18 9	15 54	27 38
32	4 0 31	5 2 5	6 3 42	7 5 20	8 11 40	10 20 26	1 17 9	2 28 24
36	1 13	2 47	4 24	6 3	12 38	22 44	18 21	29 9
40	1 55	3 29	5 6	6 46	13 38	25 5	19 32	2 29 54
44	2 37	4 11	5 48	7 30	14 38	27 26	20 42	3 0 38
48	3 19	4 53	6 30	8 13	15 40	10 29 48	21 51	1 23
52	4 0	5 36	7 12	8 56	16 42	11 2 12	22 58	2 7
56	4 42	6 18	7 54	9 41	17 46	4 35	24 5	2 52
60	4 5 25	5 7 0	6 8 35	7 10 24	8 18 50	11 7 0	1 25 10	3 3 36

Proportional Parts

Variation in 4 mins. :	1°—24'	1°—30'	1°—36'	1°—44'	1°—52'	2°—0'	2°—8'	2°—16'	2°—24'
Variation in 3 mins.	1°—3'	1°—7'	1°—12'	1°—18'	1°—24'	1°—30'	1°—36'	1°—42'	1°—48'
" " 2 mins.	42	45	48	52	56	60	1—4	1—8	1—12
" " 1 min.	21	23	24	26	28	30	32	34	36

TABLES OF ASCENDANTS

Ascendant for Latitude 52°0' North

(For Warsaw 52°N12', etc.)

Minute	SIDEREAL TIME							
	0h	3h	6h	9h	12h	15h	18h	21h
	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '
0	3 4 0	4 5 36	5 7 0	6 8 24	7 10 0	8 18 9	11 7 0	1 25 51
4	4 43	6 17	7 42	9 6	10 44	19 14	9 27	26 55
8	5 27	6 59	8 24	9 48	11 28	20 20	11 54	27 58
12	6 10	7 41	9 6	10 29	12 12	21 27	14 20	1 29 0
16	6 53	8 22	9 48	11 11	12 57	22 35	16 45	2 0 1
20	7 36	9 4	10 30	11 53	13 41	23 45	19 9	1 1
24	8 19	9 45	11 12	12 34	14 26	24 56	21 33	2 0
28	9 2	10 27	11 54	13 16	15 10	26 8	23 54	2 58
32	3 9 45	4 11 9	5 12 36	6 13 57	7 15 55	8 27 22	11 26 14	2 3 56
36	10 28	11 51	13 18	14 39	16 41	28 37	11 28 31	4 53
40	11 11	12 32	14 0	15 21	17 26	8 29 53	0 0 47	5 49
44	11 53	13 14	14 42	16 2	18 12	9 1 12	3 0	6 45
48	12 36	13 56	15 24	16 44	18 58	2 31	5 11	7 40
52	13 18	14 38	16 6	17 26	19 44	3 53	7 20	8 34
56	14 0	15 19	16 48	18 7	20 30	5 17	9 26	9 28
	1h	4h	7h	10h	13h	16h	19h	22h
0	3 14 43	4 16 1	5 17 30	6 18 49	7 21 17	9 6 42	0 11 29	2 10 21
4	15 25	16 43	18 12	19 31	22 4	8 9	13 30	11 13
8	16 7	17 25	18 54	20 12	22 51	9 38	15 28	12 5
12	16 49	18 7	19 36	20 54	23 38	11 10	17 23	12 57
16	17 31	18 48	20 18	21 36	24 26	12 43	19 17	13 48
20	18 13	19 30	21 0	22 18	25 15	14 19	21 7	14 39
24	18 55	20 12	21 42	22 59	26 3	15 57	22 55	15 29
28	19 37	20 54	22 24	23 41	26 52	17 37	24 40	16 19
32	3 20 19	4 21 36	5 23 6	6 24 23	7 27 41	9 19 20	0 26 23	2 17 8
36	21 1	22 18	23 48	25 5	28 31	31 5	28 3	17 57
40	21 42	23 0	24 30	25 47	7 29 21	22 53	0 29 41	18 45
44	22 24	23 42	25 12	26 29	8 0 12	24 43	1 1 17	19 34
48	23 6	24 24	25 53	27 11	1 3	26 37	2 50	20 22
52	23 48	25 6	26 35	27 53	1 55	9 28 32	4 22	21 9
56	24 29	25 48	27 17	28 35	2 47	10 0 30	5 51	21 56
	2h	5h	8h	11h	14h	17h	20h	23h
0	3 25 11	4 26 30	5 27 59	6 29 17	8 3 39	10 2 31	1 7 18	2 22 43
4	25 53	27 12	28 41	7 0 0	4 32	4 34	8 43	23 30
8	26 34	27 54	5 29 22	0 42	5 26	6 40	10 7	24 16
12	27 16	28 36	6 0 4	1 24	6 20	8 49	11 29	25 2
16	27 58	4 29 18	0 46	2 7	7 15	11 0	12 48	25 48
20	28 39	5 0 0	1 28	2 49	8 11	13 13	14 7	26 34
24	3 29 21	0 42	2 9	3 32	9 7	15 29	15 23	27 19
28	4 0 3	1 24	2 51	4 15	10 4	17 46	16 38	28 5
32	4 0 44	5 2 6	6 3 33	7 4 58	8 11 2	10 20 6	1 17 52	2 28 50
36	1 26	2 48	4 15	5 41	12 0	22 27	19 4	2 29 34
40	2 7	3 30	4 56	6 24	12 59	24 51	20 15	3 0 19
44	2 49	4 12	5 38	7 7	13 59	27 15	21 25	1 3
48	3 31	4 54	6 20	7 50	15 0	10 29 40	22 33	1 48
52	4 12	5 36	7 1	8 33	16 2	11 2 6	23 40	2 32
56	4 54	6 18	7 43	9 17	17 5	4 33	24 46	3 16
60	4 5 36	5 7 0	6 8 24	7 10 0	8 18 9	11 7 0	1 25 51	3 4 0

PROPORTIONAL PARTS

Variation in 4 mins. :	0°—42'	0°—45'	0°—48'	0°—52'	0°—57'	1°—3'	1°—9'	1°—15'	1°—21'
Variation in 3 mins.	31'	34'	36'	39'	43'	47'	52'	56'	1°—1'
" " 2 mins.	21	23	24	26	29	32	35	38	41
" " 1 min.	11	11	12	13	14	16	17	19	20

Ascendant for Latitude 53°0' North

(For Berlin 52°N32', Dublin 53°N20', etc.)

Minute	SIDEREAL TIME							
	0h	3h	6h	9h	12h	15h	18h	21h
	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '
0	3 4 50	4 6 0	5 7 0	6 8 0	7 9 10	8 16 41	11 7 0	1 27 19
4	5 33	6 41	7 41	8 41	9 53	17 45	9 34	28 22
8	6 16	7 22	8 23	9 22	10 36	18 50	12 8	1 29 24
12	6 59	8 3	9 5	10 3	11 19	19 56	14 41	2 0 25
16	7 41	8 44	9 46	10 44	12 3	21 3	17 13	1 25
20	8 24	9 25	10 27	11 25	12 47	22 12	19 44	2 24
24	9 6	10 7	11 9	12 6	13 31	23 22	22 13	3 22
28	9 49	10 48	11 50	12 48	14 15	24 34	24 40	4 20
32	3 10 31	4 11 29	5 12 32	6 13 29	7 14 59	8 25 46	11 27 6	2 5 17
36	11 13	12 10	13 14	14 10	15 44	27 1	11 29 29	6 13
40	11 55	12 51	13 55	14 51	16 28	28 17	0 1 49	7 8
44	12 37	13 33	14 36	15 32	17 13	8 29 34	4 8	8 3
48	13 19	14 14	15 18	16 13	17 58	9 0 54	6 23	8 57
52	14 0	14 55	15 59	16 54	18 44	2 15	8 35	9 50
56	14 42	15 36	16 41	17 35	19 29	3 38	10 45	10 43
	1h	4h	7h	10h	13h	16h	19h	22h
0	3 15 24	4 16 17	5 17 22	6 18 16	7 20 15	9 5 3	0 12 52	2 11 35
4	16 5	16 59	18 4	18 57	21 1	6 30	14 55	12 27
8	16 47	17 40	18 45	19 38	21 48	7 59	16 56	13 18
12	17 29	18 21	19 26	20 20	22 35	9 31	18 54	14 8
16	18 10	19 3	20 8	21 1	23 22	11 4	20 49	14 58
20	18 51	19 44	20 49	21 42	24 9	12 40	22 41	15 48
24	19 33	20 25	21 31	22 23	24 57	14 19	24 30	16 38
28	20 14	21 7	22 12	23 5	25 45	16 0	26 16	17 27
32	3 20 55	4 21 48	5 22 53	6 23 46	7 26 33	9 17 44	0 28 0	2 18 15
36	21 37	22 29	23 35	24 27	27 22	19 30	0 29 41	19 3
40	22 18	23 11	24 16	25 9	28 12	21 19	1 1 20	19 51
44	22 59	23 52	24 57	25 50	29 1	23 11	2 56	20 38
48	23 40	24 34	25 39	26 31	7 29 52	25 6	4 29	21 25
52	24 21	25 15	26 20	27 13	8 0 42	27 4	6 1	22 12
56	25 3	25 56	27 1	27 55	1 33	9 29 5	7 30	22 59
	2h	5h	8h	11h	14h	17h	20h	23h
0	3 25 44	4 26 38	5 27 43	6 28 36	8 2 25	10 1 8	1 8 57	2 23 45
4	26 25	27 19	28 24	6 29 18	3 17	3 15	10 22	24 31
8	27 6	28 1	29 5	7 0 0	4 10	5 25	11 45	25 16
12	27 47	28 42	5 29 46	0 41	5 3	7 37	13 6	26 2
16	28 28	4 29 24	6 0 27	1 23	5 57	9 52	14 26	26 47
20	29 9	5 0 5	1 9	2 5	6 52	12 11	15 43	27 32
24	3 29 50	0 46	1 50	2 47	7 47	14 31	16 59	28 16
28	4 0 31	1 28	2 31	3 29	8 43	16 54	18 14	29 1
32	4 1 12	5 2 10	6 3 12	7 4 11	8 9 40	10 19 20	1 19 26	2 29 45
36	1 54	2 51	3 53	4 54	10 38	21 47	20 38	3 0 29
40	2 35	3 32	4 34	5 36	11 36	24 16	21 49	1 13
44	3 16	4 14	5 16	6 19	12 35	26 47	22 57	1 57
48	3 57	4 55	5 57	7 1	13 35	10 29 19	24 4	2 41
52	4 38	5 37	6 38	7 44	14 36	11 1 52	25 10	3 24
56	5 19	6 19	7 19	8 27	15 38	4 26	26 15	4 7
60	4 6 0	5 7 0	6 8 0	7 9 10	8 16 41	11 7 0	1 27 19	3 4 50

Proportional Parts

Variation in 4 mins. :	1°—27'	1°—34'	1°—42'	1°—50'	1°—58'	2°—6'	2°—14'	2°—24'	2°—34'
Variation in 3 mins.	1°—5'	1°—10'	1°—16'	1°—22'	1°—28'	1°—34'	1°—40'	1°—48'	1°—55'
" " 2 mins.	44	47	51	55	59	1—3	1—7	1—12	1—17
" " 1 min.	22	24	26	28	30	32	34	36	39

Ascendant for Latitude 54° 0' North

(For Hamburg 53°N35', etc.)

Minute	SIDEREAL TIME							
	0h	3h	6h	9h	12h	15h	18h	21h
	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '
0	3 5 43	4 6 25	5 7 0	6 7 35	7 8 17	8 15 8	11 7 0	1 28 52
4	6 25	7 6	7 41	8 15	9 0	16 10	9 42	1 29 54
8	7 7	7 46	8 22	8 56	9 42	17 15	12 24	2 0 55
12	7 49	8 27	9 3	9 37	10 25	18 20	15 5	1 55
16	8 31	9 7	9 44	10 17	11 8	19 26	17 45	2 54
20	9 13	9 48	10 25	10 58	11 51	20 34	20 23	3 52
24	9 55	10 28	11 6	11 38	12 34	21 43	23 0	4 49
28	10 36	11 9	11 47	12 19	13 17	23 53	25 34	5 45
32	3 11 18	4 11 50	5 12 28	6 12 59	7 14 1	8 24 5	11 28 5	2 6 41
36	11 59	12 30	13 8	13 40	14 45	25 18	0 0 34	7 36
40	12 41	13 11	13 49	14 20	15 28	26 33	3 1	8 30
44	13 22	13 51	14 30	15 1	16 13	27 50	5 24	9 24
48	14 3	14 32	15 11	15 41	16 57	8 29 9	7 44	10 17
52	14 44	15 13	15 52	16 22	17 42	9 0 29	10 1	11 9
56	15 25	15 53	16 33	17 2	18 26	1 52	12 15	12 1
	1h	4h	7h	10h	13h	16h	19h	22h
0	3 16 6	4 16 34	5 17 14	6 17 43	7 19 11	9 3 16	0 14 24	2 12 52
4	16 47	17 15	17 55	18 23	19 57	4 43	16 31	13 43
8	17 28	17 56	18 36	19 4	20 42	6 12	18 34	14 33
12	18 9	18 36	19 17	19 44	21 28	7 43	20 35	15 23
16	18 50	19 17	19 57	20 25	22 15	9 16	22 31	16 12
20	19 31	19 58	20 38	21 6	23 1	10 53	24 25	17 1
24	20 12	20 39	21 19	21 46	23 48	12 32	26 15	17 49
28	20 52	21 19	22 0	22 27	24 35	14 13	28 3	18 37
32	3 21 33	4 22 0	5 22 41	6 23 8	7 25 23	9 15 57	0 29 47	2 19 25
36	22 14	22 41	23 21	23 48	26 11	17 45	1 1 29	20 12
40	22 54	23 22	24 2	24 29	26 59	19 35	3 7	20 59
44	23 35	24 3	24 43	25 10	27 48	21 29	4 44	21 45
48	24 16	24 44	25 24	25 51	28 37	23 25	6 17	22 32
52	24 56	25 24	26 5	26 32	7 29 27	25 26	7 48	23 18
56	25 37	26 5	26 45	27 13	8 0 17	27 29	9 17	24 3
	2h	5h	8h	11h	14h	17h	20h	23h
0	3 26 17	4 26 46	5 27 26	6 27 54	8 1 8	9 29 36	1 10 44	2 24 49
4	26 58	27 27	28 7	28 35	1 59	10 1 45	12 8	25 34
8	27 38	28 8	28 47	29 16	2 51	3 59	13 31	26 18
12	28 19	28 49	5 29 28	6 29 57	3 43	6 16	14 51	27 3
16	28 59	4 29 30	6 0 9	7 0 38	4 36	8 35	16 10	27 47
20	3 29 40	5 0 11	0 49	1 19	5 30	10 59	17 27	28 32
24	4 0 20	0 52	1 30	2 1	6 24	13 25	18 42	29 15
28	1 1	1 32	2 10	2 42	7 19	15 54	19 55	2 29 59
32	4 1 41	5 2 13	6 2 51	7 3 24	8 8 15	10 18 26	1 21 7	3 0 43
36	2 22	2 54	3 32	4 5	9 11	21 0	22 17	1 26
40	3 2	3 35	4 12	4 47	10 8	23 37	23 26	2 9
44	3 43	4 16	4 53	5 29	11 6	26 15	24 34	2 52
48	4 23	4 57	5 33	6 11	12 5	10 28 55	25 40	3 35
52	5 4	5 38	6 14	6 53	13 5	11 1 36	26 45	4 18
56	5 45	6 19	6 54	7 35	14 6	4 18	27 50	5 0
60	4 6 25	5 7 0	6 7 35	7 8 17	8 15 8	11 7 0	1 28 52	3 5 43

Proportional Parts

Variation in 4 mins. :	0°—40'	0°—43'	0°—47'	0°—51'	0°—56'	1°—2'	1°—9'	1°—16'	1°—24'
Variation in 3 mins.	30'	32'	35'	38'	42'	46'	52'	57'	1°—3'
" " 2 mins.	20	22	24	26	28	31	35	38	42
" " 1 min.	10	11	12	13	14	16	17	19	21

Ascendant for Latitude 56°0' North

(For Moscow 55°N45', Edinburgh 55°N57', Glasgow 55°N53', etc.)

Minute	SIDEREAL TIME							
	0h	3h	6h	9h	12h	15h	18h	21h
	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '
0	3 7 32	4 7 17	5 7 0	6 6 43	7 6 28	8 11 45	11 7 0	2 2 15
4	8 13	7 56	7 40	7 23	7 9	12 45	10 3	3 14
8	8 54	8 37	8 20	8 2	7 49	13 46	13 6	4 12
12	9 34	9 15	8 59	8 41	8 31	14 49	16 7	5 10
16	10 15	9 54	9 39	9 21	9 12	15 52	19 6	6 6
20	10 55	10 34	10 19	10 0	9 53	16 57	22 4	7 1
24	11 36	11 13	10 59	10 39	10 35	18 3	24 58	7 56
28	12 16	11 53	11 39	11 19	11 17	19 11	11 27 49	8 50
32	3 12 56	4 12 32	5 12 18	6 11 58	7 11 58	8 20 20	0 0 36	2 9 43
36	13 36	13 11	12 58	12 37	12 41	21 31	3 20	10 35
40	14 16	13 51	13 38	13 16	13 23	22 44	5 59	11 27
44	14 56	14 30	14 18	13 56	14 5	23 58	8 34	12 18
48	15 36	15 10	14 57	14 35	14 48	25 14	11 4	13 9
52	16 16	15 50	15 37	15 14	15 31	26 32	13 30	13 59
56	16 55	16 29	16 17	15 54	16 14	27 52	15 52	14 48
	1h	4h	7h	10h	13h	16h	19h	22h
0	3 17 35	4 17 9	5 16 57	6 16 33	7 16 57	8 29 15	0 18 9	2 15 37
4	18 15	17 48	17 36	17 12	17 40	9 0 40	20 22	16 26
8	18 54	18 28	18 16	17 52	18 24	2 7	22 30	17 14
12	19 34	19 7	18 56	18 31	19 8	3 37	24 34	18 1
16	20 14	19 47	19 36	19 10	19 53	5 9	26 34	18 48
20	20 53	20 26	20 15	19 50	20 37	6 45	0 28 30	19 35
24	21 32	21 6	20 55	20 29	21 22	8 23	1 0 22	20 21
28	22 12	21 46	21 35	21 9	22 7	10 5	2 10	21 7
32	3 22 51	4 22 25	5 22 14	6 21 48	7 22 53	9 11 50	1 3 55	2 21 53
36	23 31	23 5	22 54	22 28	23 39	13 38	5 37	22 38
40	24 10	23 45	23 34	23 7	24 25	15 30	7 15	23 23
44	24 50	24 24	24 13	23 46	25 12	17 26	8 51	24 7
48	25 29	25 4	24 53	24 26	25 59	19 26	10 23	24 52
52	26 8	25 44	25 32	25 6	26 46	21 30	11 53	25 36
56	26 48	26 24	26 12	25 45	27 34	23 38	13 20	26 20
	2h	5h	8h	11h	14h	17h	20h	23h
0	3 27 27	4 27 3	5 26 51	6 26 25	7 28 23	9 25 51	1 14 45	2 27 3
4	28 6	27 43	27 31	27 5	7 29 12	9 28 8	16 8	27 46
8	28 46	28 23	28 10	27 44	8 0 1	10 0 30	17 28	28 29
12	3 29 25	29 3	28 50	28 24	0 51	2 55	18 46	29 12
16	4 0 4	4 29 42	5 29 30	29 4	1 42	5 26	20 2	2 29 55
20	0 44	5 0 22	6 0 9	6 29 44	2 33	8 1	21 16	3 0 37
24	1 23	1 2	0 49	7 0 24	3 25	10 40	22 29	1 19
28	2 2	1 42	1 28	1 4	4 17	13 24	23 40	2 2
32	4 2 41	5 2 21	6 2 7	7 1 44	8 5 10	10 16 11	1 24 49	3 2 43
36	3 21	3 1	2 47	2 24	6 4	19 2	25 57	3 25
40	4 0	3 41	3 26	3 5	6 59	21 56	27 3	4 7
44	4 39	4 21	4 6	3 45	7 54	24 54	28 8	4 48
48	5 19	5 1	4 45	4 26	8 50	10 27 53	1 29 11	5 29
52	5 58	5 40	5 24	5 6	9 48	11 0 54	2 0 14	6 11
56	6 37	6 20	6 4	5 47	10 46	3 57	1 15	6 51
60	4 7 17	5 7 0	6 6 43	7 6 28	8 11 45	11 7 0	2 2 15	3 7 32

Proportional Parts

Variation in 4 mins. :	1°—32'	1°—41'	1°—51'	2°—2'	2°—13'	2°—25'	2°—37'	2°—50'	3°—3'
Variation in 3 mins.	1°—9'	1°—16'	1°—23'	1°—31'	1°—40'	1°—49'	1°—58'	2°—7'	2°—17'
" " 2 mins.	46	51	56	1—1	1—7	1—13	1—19	1—25	1—32
" " 1 min.	23	25	28	31	33	36	39	43	46

Ascendant for Latitude 58°0' North

(For all places in or near 58°N. latitude)

Minute	SIDEREAL TIME							
	0h	3h	6h	9h	12h	15h	18h	21h
	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '
0	3 9 30	4 8 11	5 7 0	6 5 49	7 4 30	8 7 58	11 7 0	2 6 2
4	10 9	8 49	7 39	6 27	5 10	8 54	10 34	6 58
8	10 48	9 28	8 17	7 5	5 49	9 52	14 6	7 52
12	11 27	10 6	8 56	7 43	6 28	10 50	17 37	8 46
16	12 5	10 44	9 34	8 21	7 8	11 50	21 4	9 39
20	12 44	11 22	10 13	8 59	7 48	12 51	24 28	10 31
24	13 23	12 0	10 52	9 37	8 27	13 54	11 27 47	11 23
28	14 2	12 38	11 30	10 15	9 7	14 58	0 1 0	12 13
32	3 14 40	4 13 17	5 12 9	6 10 53	7 9 47	8 16 3	0 4 8	2 13 3
36	15 19	13 55	12 47	11 31	10 27	17 10	7 9	13 53
40	15 57	14 33	13 26	12 9	11 8	18 18	10 5	14 42
44	16 36	15 11	14 4	12 48	11 48	19 29	12 53	15 30
48	17 14	15 50	14 43	13 26	12 29	20 41	15 36	16 17
52	17 52	16 28	15 22	14 4	13 10	21 55	18 11	17 5
56	18 31	17 6	16 0	14 42	13 51	23 11	20 41	17 51
	1h	4h	7h	10h	13h	16h	19h	22h
0	3 19 9	4 17 45	5 16 39	6 15 20	7 14 32	8 24 30	0 23 4	2 18 37
4	19 47	18 23	17 17	15 58	15 14	25 51	25 22	19 23
8	20 25	19 1	17 56	16 36	15 55	27 15	27 34	20 9
12	21 4	19 40	18 34	17 14	16 37	8 28 41	0 29 40	20 53
16	21 42	20 18	19 13	17 52	17 19	9 0 11	1 1 42	21 38
20	22 20	20 57	19 51	18 30	18 2	1 43	3 38	22 22
24	22 58	21 35	20 30	19 8	18 44	3 19	5 30	23 6
28	23 36	22 13	21 8	19 46	19 27	4 59	7 17	23 50
32	3 24 14	4 22 52	5 21 47	6 20 24	7 20 10	9 6 43	1 9 1	2 24 33
36	24 52	23 30	22 25	21 2	20 54	8 30	10 41	25 16
40	25 30	24 9	23 3	21 40	21 38	10 22	12 17	25 58
44	26 8	24 47	23 42	22 18	22 22	12 18	13 49	26 41
48	26 46	25 26	24 20	22 56	23 7	14 20	15 18	27 23
52	27 24	26 4	24 59	23 35	23 52	16 26	16 45	28 5
56	28 2	26 43	25 37	24 13	24 37	18 38	18 9	28 46
	2h	5h	8h	11h	14h	17h	20h	23h
0	3 28 40	4 27 21	5 26 15	6 24 51	7 25 23	9 20 56	1 19 30	2 29 28
4	29 18	28 0	26 54	25 29	26 9	23 19	20 49	3 0 9
8	3 29 56	28 38	27 32	26 8	26 55	25 49	22 5	0 50
12	4 0 34	29 17	28 10	26 46	27 43	9 28 24	23 19	1 31
16	1 12	4 29 55	28 49	27 24	28 30	10 1 7	24 31	2 12
20	1 51	5 0 34	5 29 27	28 3	7 29 18	3 55	25 41	2 52
24	2 29	1 13	6 0 5	28 41	8 0 7	6 51	26 50	3 32
28	3 7	1 51	0 43	29 20	0 57	9 52	27 57	4 13
32	4 3 45	5 2 30	6 1 22	6 29 58	8 1 47	10 13 0	1 29 2	3 4 53
36	4 23	3 8	2 0	7 0 37	2 37	16 13	2 0 6	5 33
40	5 1	3 47	2 38	1 16	3 29	19 32	1 9	6 12
44	5 39	4 26	3 16	1 55	4 21	22 56	2 10	6 52
48	6 17	5 4	3 54	2 33	5 14	26 23	3 10	7 32
52	6 55	5 43	4 32	3 12	6 7	10 29 54	4 8	8 11
56	7 33	6 21	5 11	3 51	7 2	11 3 26	5 6	8 50
60	4 8 11	5 7 0	6 5 49	7 4 30	8 7 58	11 7 0	2 6 2	3 9 30

Proportional Parts

Variation in 4 mins. :	0°—38'	0°—42'	0°—47'	0°—52'	0°—58'	1°—4'	1°—11'	1°—19'	1°—28'
Variation in 3 mins.	28'	31'	35'	39'	43'	48'	53'	59'	1°—6'
" " 2 mins.	19	21	24	26	29	32	36	40	44
" " 1 min.	10	11	12	13	15	16	18	20	22

Ascendant for Latitude 60°0' North

(For Leningrad 59°N55', Oslo 59°N54', etc.)

Minute	SIDEREAL TIME											
	0h		3h		6h		9h		12h		15h		18h		21h	
	s	° '	s	° '	s	° '	s	° '	s	° '	s	° '	s	° '	s	° '
0	3	11 35	4	9 9	5	7 0	6	4 51	7	2 25	8	3 43	11	7 0	2	10 17
4		12 12		9 45		7 37		5 28		3 3		4 35		11 23		11 8
8		12 49		10 22		8 15		6 5		3 40		5 28		15 43		11 58
12		13 26		10 59		8 52		6 42		4 18		6 22		19 59		12 48
16		14 3		11 36		9 29		7 18		4 55		7 16		24 10		13 36
20		14 40		12 13		10 7		7 55		5 33		8 12	11	28 12		14 24
24		15 17		12 50		10 44		8 32		6 11		9 9	0	2 6		15 12
28		15 54		13 27		11 21		9 9		6 49		10 8		5 50		15 58
32	3	16 31	4	14 4	5	11 59	6	9 45	7	7 27	8	11 8	0	9 25	2	16 45
36		17 8		14 41		12 36		10 22		8 5		12 9		12 48		17 30
40		17 45		15 18		13 13		10 59		8 43		13 12		16 2		18 16
44		18 22		15 55		13 51		11 35		9 21		14 16		19 5		19 0
48		18 59		16 32		14 28		12 12		10 0		15 22		21 59		19 44
52		19 36		17 9		15 5		12 49		10 38		16 30		24 43		20 28
56		20 12		17 46		15 43		13 25		11 17		17 41		27 18		21 12
	1h		4h		7h		10h		13h		16h		19h		22h	
0	3	20 49	4	18 23	5	16 20	6	14 2	7	11 56	8	18 53	0	29 44	2	21 54
4		21 26		19 0		16 57		14 38		12 35		20 8	1	2 3		22 37
8		22 2		19 37		17 34		15 15		13 14		21 25		4 15		23 19
12		22 39		20 14		18 12		15 52		13 54		22 46		6 20		24 1
16		23 15		20 51		18 49		16 28		14 33		24 9		8 19		24 43
20		23 52		21 28		19 26		17 5		15 13		25 36		10 12		25 24
24		24 29		22 5		20 3		17 41		15 53		27 7		11 59		26 5
28		25 5		22 42		20 40		18 18		16 33	8	28 40		13 42		26 46
32	3	25 42	4	23 20	5	21 18	6	18 55	7	17 14	9	0 18	1	15 20	2	27 27
36		26 19		23 57		21 55		19 31		17 55		2 1		16 53		28 7
40		26 55		24 34		22 32		20 8		18 35		3 48		18 24		28 47
44		27 32		25 11		23 9		20 45		19 17		5 41		19 51	2	29 27
48		28 8		25 48		23 46		21 21		19 59		7 40		21 14	3	0 6
52		28 45		26 26		24 23		21 58		20 41		9 45		22 35		0 46
56		29 22		27 3		25 0		22 34		21 23		11 57		23 52		1 25
	2h		5h		8h		11h		14h		17h		20h		23h	
0	3	29 58	4	27 40	5	25 37	6	23 11	7	22 6	9	14 16	1	25 7	3	2 4
4	4	0 35		28 17		26 14		23 48		22 48		16 42		26 19		2 43
8		1 11		28 55		26 51		24 25		23 32		19 17		27 30		3 22
12		1 48	4	29 32		27 29		25 1		24 16		22 1		28 38		4 0
16		2 25	5	0 9		28 5		25 38		25 0		24 55	1	29 44		4 39
20		3 1		0 47		28 42		26 15		25 44	9	27 58	2	0 48		5 17
24		3 38		1 24		29 19		26 52		26 30	10	1 12		1 51		5 55
28		4 15		2 1	5	29 56		27 29		27 15		4 35		2 52		6 33
32	4	4 51	5	2 39	6	0 33	6	28 6	7	28 1	10	8 10	2	3 52	3	7 11
36		5 28		3 16		1 10		28 43		28 48		11 54		4 51		7 49
40		6 5		3 53		1 47		29 20	7	29 36		15 48		5 48		8 27
44		6 42		4 31		2 24	6	29 57	8	0 24		19 50		6 44		9 5
48		7 18		5 8		3 1	7	0 34		1 12		24 1		7 38		9 42
52		7 55		5 45		3 38		1 11		2 2	10	28 17		8 32		10 20
56		8 32		6 23		4 15		1 48		2 52	11	2 37		9 25		10 57
60	4	9 9	5	7 0	6	4 51	7	2 25	8	3 43	11	7 0	2	10 17	3	11 35

Proportional Parts

Variation in 4 mins. :	1°—38'	1°—50'	2°—4'	2°—20'	2°—38'	2°—58'	3°—22'	3°—50'	4°—22'
Variation in 3 mins.	1°—13'	1°—22'	1°—33'	1°—45'	1°—58'	2°—13'	2°—31'	2°—52'	3°—16'
" " 2 mins.	49	55	1—2	1—10	1—19	1—29	1—41	1°—55	2—11
" " 1 min.	25	28	31	35	40	45	51	58	1—6

TENTH HOUSE or M.C.

(For all places on the Earth)

Minute	SIDEREAL TIME							
	0h	3h	6h	9h	12h	15h	18h	21h
	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '	s ° '
0	11 7 0	0 24 28	2 7 0	3 19 32	5 7 0	6 24 28	8 7 0	9 19 32
4	8 5	25 28	7 55	20 32	8 5	25 28	7 55	20 32
8	9 11	26 27	8 50	21 32	9 11	26 27	8 50	21 32
12	10 16	27 27	9 45	22 32	10 16	27 27	9 45	22 32
16	11 22	28 26	10 40	23 33	11 22	28 26	10 40	23 33
20	12 27	0 29 25	11 35	24 33	12 27	6 29 25	11 35	24 33
24	13 32	1 0 23	12 30	25 34	13 32	7 0 23	12 30	25 34
28	14 37	1 22	13 26	26 35	14 37	1 22	13 26	26 35
32	11 15 43	1 2 21	2 14 21	3 27 36	5 15 43	7 2 21	8 14 21	9 27 36
36	16 48	3 19	15 16	28 37	16 48	3 19	15 16	28 37
40	17 53	4 17	16 11	3 29 39	17 53	4 17	16 11	9 29 39
44	18 58	5 15	17 7	4 0 41	18 58	5 15	17 7	10 0 41
48	20 3	6 13	18 2	1 42	20 3	6 13	18 2	1 42
52	21 8	7 11	18 58	2 44	21 8	7 11	18 58	2 44
56	22 12	8 8	19 53	3 47	22 12	8 8	19 53	3 47
	1h	4h	7h	10h	13h	16h	19h	22h
0	11 23 17	1 9 5	2 20 49	4 4 49	5 23 17	7 9 5	8 20 49	10 4 49
4	24 21	10 3	21 44	5 52	24 21	10 3	21 44	5 52
8	25 26	11 0	22 40	6 54	25 26	11 0	22 40	6 54
12	26 30	11 57	23 36	7 57	26 30	11 57	23 36	7 57
16	27 34	12 54	24 32	9 0	27 34	12 54	24 32	9 0
20	28 38	13 50	25 28	10 3	28 38	13 50	25 28	10 3
24	11 29 42	14 47	26 24	11 7	5 29 42	14 47	26 24	11 7
28	0 0 46	15 43	27 20	12 10	6 0 46	15 43	27 20	12 10
32	0 1 50	1 16 40	2 28 17	4 13 14	6 1 50	7 16 40	8 28 17	10 13 14
36	2 53	17 36	2 29 13	14 18	2 53	17 36	8 29 13	14 18
40	3 57	18 32	3 0 10	15 22	3 57	18 32	9 0 10	15 22
44	5 0	19 28	1 6	16 26	5 0	19 28	1 6	16 26
48	6 3	20 24	2 3	17 30	6 3	20 24	2 3	17 30
52	7 6	21 20	3 0	18 34	7 6	21 20	3 0	18 34
56	8 8	22 16	3 57	19 39	8 8	22 16	3 57	19 39
	2h	5h	8h	11h	14h	17h	20h	23h
0	0 9 11	1 23 11	3 4 55	4 20 43	6 9 11	7 23 11	9 4 55	10 20 43
4	10 13	24 7	5 52	21 48	10 13	24 7	5 52	21 48
8	11 16	25 2	6 49	22 52	11 16	25 2	6 49	22 52
12	12 18	25 58	7 47	23 57	12 18	25 58	7 47	23 57
16	13 19	26 53	8 45	25 2	13 19	26 53	8 45	25 2
20	14 21	27 49	9 43	26 7	14 21	27 49	9 43	26 7
24	15 23	28 44	10 41	27 12	15 23	28 44	10 41	27 12
28	16 24	1 29 39	11 39	28 17	16 24	7 29 39	11 39	28 17
32	0 17 25	2 0 34	3 12 38	4 29 23	6 17 25	8 0 34	9 12 38	10 29 23
36	18 26	1 30	13 37	5 0 28	18 26	1 30	13 37	11 0 28
40	19 27	2 25	14 35	1 33	19 27	2 25	14 35	1 33
44	20 27	3 20	15 34	2 38	20 27	3 20	15 34	2 38
48	21 28	4 15	16 33	3 44	21 28	4 15	16 33	3 44
52	22 28	5 10	17 33	4 49	22 28	5 10	17 33	4 49
56	23 28	6 5	18 32	5 55	23 28	6 5	18 32	5 55
60	0 24 28	2 7 0	3 19 32	5 7 0	6 24 28	8 7 0	9 19 32	11 7 0

PROPORTIONAL PARTS

Variation in 4 mins. :	1°—5'	1°—3'	1°—1'	0°—59'	0°—57'	0°—55'
Variation in 3 mins.	49'	47'	46'	44'	43'	41'
" " 2 mins	32	31	31	30	29	28
" " 1 min	16	16	15	15	14	14

APPENDIX I

Accuracy of data and relative errors

In correctly ascertaining the exact value of the ascendant or of the tenth house, it is essential that the data employed should be as accurate as possible. For this purpose the following two elements are required. *Firstly*, the time of the event should be recorded correctly and with as much accuracy as possible, and *secondly* the exact location of the place of occurrence should also be known. But in general cases in which we are required to find the ascendant some amount of error is unavoidable, and consequently the exact value of the ascendant etc. cannot be secured. Let us now consider the different sources of error and the relative inaccuracies in the ascendant resulting therefrom.

The astrologer is ordinarily concerned with the time of birth of a child, the time of running a race, etc. In case of a birth, leaving aside the controversy as to whether the time of separation from the mother's womb or the time of first cry should be regarded as the birth-time, we are in no case enabled to record the time beyond the measure of a minute. When we record the time in terms of minutes, we are liable to commit an error which may amount to as much as 30 secs. even in the case of most accurate recording of the time. Added to this the clock-error, as there is always at least a few seconds of error in almost all the most accurate time-keepers, the total unavoidable error in time on either side amounts to 1 min. at the least. This produces the same amount of error in the sidereal time which deviates the determination of the degree of the ascendant by the following amount.

ERROR IN TIME	RESULTING ERROR IN ASCENDANT		
60 secs. or 1 min.	For latitude	0°	... 14' to 16'
	" "	20°	... 13' to 19'
	" "	40°	... 12' to 26'
	" "	60°	... 9' to 66'

For greater error in time, the resulting error in the Ascendant would however increase proportionately.

Next comes the error in the determination of the exact latitude and longitude of the place of event. We generally use the latitude and longitude of the nearest city or town without making any correction thereof. The lat. and the long. of a city as given at the end of this book or as are obtainable from the Index given in Atlases relate to a certain point, in most cases the *central point* of that city. In order to make necessary corrections to the adopted value of lat. and long. the distance and direction of the place from the above mentioned central point should be ascertained, and then the distance in miles is to be multiplied by the following multipliers to *reduce* it to the co-ordinate system.

Direction of place	Multiplier for latitude (South-North direction)	Multiplier for longitude (West-East direction)	Direction of place	Multiplier for latitude (South-North direction)	Multiplier for longitude (West-East (direction)
North	+1.00	0.00	South	–1.00	0.00
N.E.	+0.71	+0.71	S.W.	–0.71	–0.71
East	0,00	+1.00	West	0.00	–1.00
S.E.	–0.71	+0.71	N.W.	+0.71	–0.71

If the place of event lies in the east of the above-mentioned central point, of which the longitude is used, the correct local time would be greater than that obtained by the local time-correction for the adopted longitude, and if it lies in the west, the time would be less. This additional error in the local time will deviate the value of the ascendant by some amount as stated above.

To rectify this error the adopted longitude of the central point should be corrected before using it for the place. The following table shows the corrections in longitude and consequently in the local time depending upon the reduced distance in miles (east or west, according to the co-ordinate system as obtained above) of the place of event from the adopted central point. The last column of figures given below shows the error in the ascendant if this correction is not taken into account.

In Latitude	Correction in longitude per 10 miles of reduced distance	Corresponding correction in local time East (+), West (-)	Resulting error in Ascendant
°	'	m s	' '
0	8.7	0 34.8	8 to 9
10	8.8	0 35.2	8 " 10
20	9.2	0 36.8	8 " 11
30	10.0	0 40.0	9 " 15
40	11.3	0 45.2	9 " 20
50	13.5	0 54.0	10 " 31
60	17.3	1 09.2	10 " 76

It may be seen from the above table that for a distance of 1 mile (reduced in the west-east direction) the error produced in the local time (and also in sidereal time) amounts to 3.5 to 6.9 secs. As it is ordinarily very difficult to locate a place with correctness less than a mile of distance, it is absolutely useless to attend to minor corrections, such as the corrections to the Indian sidereal time for different places in India as given in table at the end of the book.

The adopted latitude of the place should also be corrected to obtain the true latitude of the place of event. For this purpose the reduced distance in the south-north direction according to the co-ordinate system as obtained before, should be converted into correction in latitude (in mins. of arc) by the following table and applied to the adopted value of the latitude. The last set of figs. given below shows the resulting error in the ascendant if this correction of latitude is not taken.

In Latitude	Correction in latitudes per 10 miles of reduced distance	Resulting error* in the Ascendant	Error* in the Ascendant for an error of 30 of lat.
°	'	' '	' '
0	8.7	0 to 3.5	0 to 12
20	8.7	0 " 3.8	0 " 13
30	8.7	0 " 4.9	0 " 17
40	8.7	0 " 7.0	0 " 24
50	8.7	0 " 12.2	0 " 42
60	8.7	0 " 31.3	0 " 108

These errors vanish when S.T. is 6h or 18h and are positive near oh and negative near 12h of Sidereal time.

The tables in this book have generally been given at intervals of one degree and in some cases half a degree or two degrees of latitude. When the latitude of the place does not exactly agree with the given latitude of the table, recourse should be taken to the method of interpolation between the results of two tables. If this is not done, there will also be some error, the maximum value of which, when the latitude differs by 30', has been given in the last column of the above table.

It thus appears from a consideration of the above values of errors that the longitude of the ascendant even carefully ascertained should be regarded as correct to half a degree only, and it is not unlikely that the probable error may amount even to one degree or more in some cases.

Construction of the Tables

The table of the tenth house and those of the ascendants have been reduced to the *nirayana* system by the deduction of 23° 0' from the calculated longitudes of the corresponding *Sayana* tables. The formula and the method of construction of these *Sayana* tables are given below.

In the following discussions the sidereal time has been expressed in degrees and minutes, whereas in the book the same has been given in hours and minutes. The rate of conversion is 4 mins. of time to a degree as shown below.

1' (min.)	= 0*h* 0*m* 4*s*	90° (deg.)	= 6*h* 0*m*
1° (deg.)	= 0*h* 4*m*	180°	= 12 0
15°	= 1*h* 0*m*	270°	= 18 0
30°	= 2*h* 0*m*	360°	= 24 0

The ecliptic is inclined to the equator at an angle of 23° 26' 46" (in 1947) which is expressed by *w*. For the sake of convenience we have taken the value of w = 23° 27' (value for 1918).

The Tenth House or M.C.—The point of intersection of the ecliptic of the given time with the meridian of the place is the tenth house for that moment. It is also termed as the mid-heaven or the Medium Coeli (M.C.) and is also sometimes called simply the meridian. The longitude of this point is as usual measured along the ecliptic from the First Point of Aries. The right ascension of the M.C. is the sidereal time of the moment which is often called the R.A.M.C.

If A = Longitude of the M.C. (*sayana*)

B = R.A.M.C. or the Sidereal time (in degrees).

Then $\tan A \cos w = \tan B$. (when A is given and B is required).

or $\tan B \sec w = \tan A$. (when B is given and A is required).

The following table (Auxiliary Table I) gives the value of B corresponding to the integral values of A (when w = 23° 27') together with the values of D and θ also, where

D = Declination of the M.C. and

θ = 90°—angle between the meridian and the ecliptic.

Here $\sin A \sin w = \sin D$

and $\sin w \cos B = \sin \theta$

or $\cos A \tan w = \tan \theta$

Auxiliary Table I

A	B	D	θ	A	B	D	θ
°	° '	° '	° '	°	° '	° '	° '
0	0 0.0	0 0.0	23 27.0	45	42 32.0	16 20.6	17 3.1
1	0 55.0	0 23.9	23 26.8	46	43 31.9	16 38.0	16 46.1
2	1 50.1	0 47.8	23 26.2	47	44 31.9	16 55.2	16 28.8
3	2 45.2	1 11.6	23 25.3	48	45 32.2	17 12.6	16 11.1
4	3 40.2	1 35.4	23 23.9	49	46 32.6	17 28.7	15 53.1
5	4 35.3	1 59.3	23 22.2	50	47 33.2	17 44.9	15 34.8
6	5 30.4	2 23.0	23 20.1	51	48 33.9	18 0.9	15 16.1
7	6 25.6	2 46.8	23 17.6	52	49 34.9	18 16.5	14 57.1
8	7 20.8	3 10.5	23 14.8	53	50 36.0	18 31.9	14 37.8
9	8 16.0	3 34.2	23 11.5	54	51 37.3	18 46.9	14 18.2
10	9 11.3	3 57.8	23 7.9	55	52 38.8	19 1.5	13 58.3
11	10 6.7	4 21.3	23 3.9	56	53 40.5	19 15.8	13 38.1
12	11 2.1	4 44.7	22 59.5	57	54 42.4	19 29.8	13 17.5
13	11 57.5	5 8.2	22 54.7	58	55 44.4	19 43.4	12 56.7
14	12 53.0	5 31.5	22 49.5	59	56 46.6	19 56.7	12 35.6
15	13 48.6	5 54.7	22 44.0	60	57 49.0	20 9.6	12 14.2
16	14 44.3	6 17.9	22 38.1	61	58 51.5	20 22.1	11 52.6
17	15 40.0	6 40.9	22 31.8	62	59 54.3	20 34.3	11 30.6
18	16 35.9	7 3.8	22 25.1	63	60 57.1	20 46.1	11 8.4
19	17 31.8	7 26.7	22 18.0	64	62 0.2	20 57.5	10 45.9
20	18 27.9	7 49.4	22 10.6	65	63 3.4	21 8.5	10 23.3
21	19 24.0	8 11.9	22 2.8	66	64 6.7	21 19.1	10 0.4
22	20 20.2	8 34.4	21 54.6	67	65 10.2	21 29.3	9 37.2
23	21 16.6	8 56.7	21 46.0	68	66 13.9	21 39.1	9 13.8
24	22 13.1	9 18.9	21 37.0	69	67 17.7	21 48.6	8 50.2
25	23 9.7	9 40.9	21 27.7	70	68 21.6	21 57.6	8 26.3
26	24 6.4	10 2.8	21 18.0	71	69 25.7	22 6.2	8 2.3
27	25 3.2	10 24.5	21 7.9	72	70 29.8	22 14.4	7 38.1
28	26 0.2	10 46.1	20 57.4	73	71 34.1	22 22.1	7 13.7
29	26 57.3	11 7.4	20 46.6	74	72 38.6	22 29.4	6 49.1
30	27 54.5	11 28.6	20 35.4	75	73 43.1	22 36.4	6 24.3
31	28 51.9	11 49.6	20 23.8	76	74 47.7	22 42.8	5 59.4
32	29 49.4	12 10.4	20 11.8	77	75 52.5	22 48.9	5 34.4
33	30 47.1	12 31.0	19 59.5	78	76 57.3	22 54.5	5 9.2
34	31 44.9	12 51.5	19 46.8	79	78 2.2	22 59.7	4 43.9
35	32 42.9	13 11.7	19 33.7	80	79 7.2	23 4.4	4 18.5
36	33 41.1	13 31.6	19 20.3	81	80 12.3	23 8.7	3 52.9
37	34 39.4	13 51.4	19 6.5	82	81 17.4	23 12.5	3 27.3
38	35 37.9	14 10.9	18 52.3	83	82 22.6	23 15.9	3 1.6
39	36 36.5	14 30.2	18 37.8	84	83 27.9	23 18.8	2 35.8
40	37 35.3	14 49.3	18 22.9	85	84 33.1	23 21.3	2 9.9
41	38 34.3	15 8.0	18 7.6	86	85 38.5	23 23.4	1 44.0
42	39 33.5	15 26.6	17 52.0	87	86 43.8	23 25.0	1 18.0
43	40 32.8	15 44.9	17 36.1	88	87 49.2	23 26.1	0 52.0
44	41 32.3	16 2.9	17 19.8	89	88 54.6	23 26.8	0 26.0
45	42 32.0	16 20.6	17 3.1	90	90 0.0	23 27.0	0 0.0

When the value of *A*, the argument of the table, is greater than 90°, ascertain its defect from or excess over 180° or 360° whichever is nearer, and then enter the table with that value according to the folowing rule. The corresponding value of *B* in that case should also be subtracted from or added to 180° or 360° as the case may be *D* and θ will be psitive or negative as indicated below.

Arg. A—quadrant & reduction

	—	A
1st	quadrant	*A*
2nd	"	180°–*A*
3rd	"	*A*–180°
4th	"	360°–*A*

Results — value and sign

B	D	θ
B	+*D*	+θ
180°–*B*	+*D*	–θ
180°+*B*	–*D*	–θ
360°–*B*	–*D*	+θ

The table of the Xth house can be prepared in two ways. Firstly by finding the sidereal time for some given degrees of the M.C. and secondly by finding the M.C. for some given values of the sidereal time. Similar is the case for ascendant also.

A table of the **Tenth House** in terms of the sidereal time for some given degrees of the M.C. (as furnished in the Indian Ephemeris) can now be prepared by converting *B* into time and arranging against given values of *A*, the longitude of the M.C. Again the table can easily be rearranged with the values of *A* against given values of *B*, the sidereal time of the moment, as has been done in this book (*vide* page 8).Ψ

The Ascendant : —The Ascendant or the orient ecliptic point is the point of intersection of the ecliptic with the eastern horizon of the place. It is the first house and is also sometimes called the horizon.

I. A table of the ascendant for a known latitude of place can be prepared with given values of the longitude of the ascendant as argument of the table (as in the Indian Ephemeris) in the following way :—

Let *A* = given long. of ascendant (*Sayana*). Then find *B* and *D* from the above tables corresponding to *A*. Let ϕ = latitude of place.

Now find the angle *C** by the formula $\tan \phi \tan D = \sin C$.

As usual *C* is + *ve* when both ϕ and *D* are positive or both are negative; when one is +*ve* and the other –*ve* the value of *C* will be negative.

Now the required sidereal time corresponding to the given longitude of the ascendant = $B-C-90°$. This may be converted into time in the usual way and arranged against desired degrees of the ascendant.

If the rising period of each ascending sign (*lagnamana*) is required, find the sidereal time corresponding to each 30° of the ascendant (*nirayana* or *sayana* as the case may be), and the differences between the successive values of the sidereal time thus found will be the durations of the different ascending signs in sidereal time interval.

II. When a table of the ascendant prepared for some integral and equidistant values of the sidereal time (as in this book) is required, proceed as follows :—

Suppose *A* =given sidereal time in deg.+90°. Then find from the above table the values of *B*, *D* and θ corresponding to *A*. Now find the angle *E* from the formula.

$\sin D \tan (\phi + \theta) = \tan E$.

(*E* will be +ve when both *D* and $\phi + \theta$ are positive or negative, otherwise *E* will be –*ve*).

Then the ascendant = $B + E$.

If necessary this may be converted into the *nirayana* longitude as in this book.

Ψ The table on prepage can also be rearranged with integral values of *B* by writing under col. *A*, the angle $90°-B$, under col. *B* the angle $90°-A$ and interchanging figures under *D* and θ.

* Here *C* is the *Chara* or the ascensional difference which is required in finding the timings of sunrise and sunset or the rising or setting times of a planet. Approximate values of *C* have been given in a table of Ascensional Differences in the Indian Ephemeris.

APPENDIX II

Extent of houses and different systems of division

The tables given in this book have furnished the longitude of the ascendant and that of the tenth house only. It now remain to ascertain the degrees of other house. There are various methods for finding the longitudes of the remaining houses, of which only the principal ones will be explained here. Before entering into those discussion a few words need be said regarding the extent of a house with reference to the longitude of that house.

(A) The Extent of a House

The circle of the zodiac is divided into 12 houses and as such each house extends over more or less 30° degrees. Now the question is from which point a house will begin and where will it end. According to the European method, the longitude of a house is the beginning point of that house, *e.g.* the first house begins from the longitude of the ascendant and extends upto the longitude of the second house from which point again the second house begins, and so on. According to this method the *M.C.* is the beginning point of the tenth house which ends at the longitude of the 11th house. When a planet falls within the above mentioned region of a particular house, it is said to have occupied that house and to exert its influence over it. The longitude of the different houses are thus the junction point of the houses and as such they are called the Cusps (*Sandhis*) of the houses in the European system.

According to the Indian or Hindu method the above mentioned cusps or longitudes of the houses are the middle points of the respective houses and not the junction points. A house commences from about 15° behind the longitude of that house and extends upto about 15° ahead of it. These junction points which are the cusps or *bhava sandhis* of this method, are obtainable by dividing by 2, the sum of the longitudes of two consecutive houses of which the *sandhi* is required. A house extends over the span from the preceding *sandhi* upto the following *sandhi* of the house concerned. The longitudes of the houses, such as the ascendant, the M.C. etc., are thus the *central point* of those house and as such are the most sensitive points in the horoscope. But the whole sign in which the degree of ascendant falls is generally considered the first house and so on. This may be called compartmental system.

The above mentioned Hindu method seems to be more rational and worthy of being followed in all astrological calculations particularly in the casting of nativity.

(B) Different Systems of House-Division

The ascendant and the tenth house are the same in all the systems mentioned below except in the Ptolemaic system or *modus equalis* in which the tenth house is different from the M.C. In all the systems the positions of any six consecutive houses are diametrically opposite to the positions of the remaining six consecutive houses, so that 180° or six signs added to the longitude of any house gives the longitude of the opposite house, thus—

Long. of 10th house or M.C. +6 signs = Long. of 4th house or I.C.
" " 11th house +6 signs = Long. of 5th house.
" " 12th " " " 6th "
" " 1st " or Asc. +6 signs = Long. of 7th house or desendant.
" " 2nd house +6 signs = Long. of 8th house.
" " 3rd " " 9th " and so on.

The methods of finding the longitudes of the different houses according to the different systems are stated below. After finding these longitudes, the extent of each house may be determined either according to the above mentioned European or the Hindu method as the reader likes.

(1) Ptolemaic system or modus equalis

In this system all the houses are at equal distances on the ecliptic and their longitudes differ by 30° in each case commencing from the ascendant. Here the degree of the ascendant only is required to be found and the longitudes of the successive houses will have the same degree in the successive signs of the zodiac. The 10th house in this system is thus 90° behind the ascendant and is known as the nonagesimal, which is not the same as the M.C. obtained from the table. The follower of this system will take the nonagesimal point as the tenth house in horoscope-making leaving aside the M.C. which may be utilised for other astrological purposes.

This system of equal division of the ecliptic, which was presumably in vogue in India also in early times is not generally followed at present. But this system is gradually gaining popularity as the arguments in its favour are being rightly advocated by some of the present day astrologers of the West and it is hoped that the merits of this system will be appreciated in this country also before long.

(2) Porphyry's or Current Hindu system

In this system at first the Ascendant and the M.C. are obtained from the tables and then the other two cardinal points *viz*. the descendant or the 7th house and the I.C. or the 4th house are derived therefrom as usual by adding 6 signs to them. Then the difference between the Ascendant and the M.C. is divided into three equal parts and by adding this third part to the M.C. the eleventh house is obtained, and again adding this third part to the 11th house, the 12th house is found. In a similar way by adding to the ascendant successively the third part of the difference between the 4th house and the ascendant, the longitudes of the 2nd and the 3rd houses are obtained. The remaining houses can be worked out by a similar process, but they are easily deducible by adding 6 signs to each of the opposite houses already found out.

The calculation of the different houses in this system is very simple and they can be worked out easily in each individual case, but for the sake of comparison a table is given below showing the distance between each house from the 10th to the 1st for a few places against certain degrees of the ascendant. The extent of the houses from the 1st to the 4th is, however, obtainable by subtracting this given extent from 60° degrees.

DISTANCE BETWEEN EACH HOUSE FROM THE M.C. TO THE ASCENDANT

ASCENDANT		Latitude of place (North)								
Sayana	Nirayana	0°	13°	19°	22°35	25°23	31°36	40°	50°	60°
°	s °	° '	° '	° '	° '	° '	° '	° '	° '	° '
0	11 7	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0
15	11 22	30 46	31 11	31 23	31 31	31 38	31 53	32 16	33 2	33 57
30	0 7	31 22	32 13	32 37	32 53	33 6	33 38	34 26	35 45	37 46
45	0 22	31 39	32 54	33 32	33 55	34 14	35 1	36 15	38 12	41 19
60	1 7	31 29	33 9	33 58	34 28	34 54	35 54	37 31	40 5	44 22
75	1 22	30 53	32 51	33 49	34 25	34 55	36 7	38 3	41 10	46 28
90	2 7	30 0	32 5	33 7	33 46	34 19	35 36	37 41	41 7	47 3
105	2 22	29 7	31 6	32 5	32 43	33 13	34 28	36 31	39 52	45 40
120	3 7	28 31	30 13	31 2	31 35	32 1	33 6	34 50	37 44	42 38
135	3 22	28 21	29 39	30 17	30 42	31 2	31 51	33 10	35 19	38 52
150	4 7	28 38	29 30	29 55	30 11	30 24	30 56	31 47	33 9	35 21
165	4 22	29 14	29 40	29 52	30 0	30 6	30 22	30 47	31 26	32 26
180	5 7	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0
195	5 22	30 46	30 20	30 8	30 0	29 54	29 38	29 13	28 34	27 34
210	6 7	31 22	30 30	30 5	29 49	29 36	29 4	28 13	26 51	24 39
225	6 22	31 39	30 21	29 43	29 18	28 58	28 9	26 50	24 41	21 8
240	7 7	31 29	29 47	28 58	28 25	27 59	26 54	25 10	22 16	17 22
255	7 22	30 53	28 54	27 55	27 17	26 47	25 32	23 29	20 8	14 20
270	8 7	30 0	27 55	26 53	26 14	25 41	24 24	22 19	18 53	12 57
285	8 22	29 7	27 9	26 11	25 35	25 5	23 53	21 57	18 50	13 32
300	9 7	28 31	26 51	26 2	25 32	25 6	24 6	22 29	19 55	15 38
315	9 22	28 21	27 6	26 28	26 5	25 46	24 59	23 45	21 48	18 41
330	10 7	28 38	27 47	27 23	27 7	26 54	26 22	25 34	24 15	22 14
345	10 22	29 14	28 49	28 37	28 29	28 22	28 7	27 44	26 58	26 3
360	11 7	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0

(3) Placidus's or Semi-Arc System

The principle underlying this system is that when a planet rises in the eastern horizon by the diurnal motion, it is then exactly on the ascendant. Thereafter if passes over the 12th house the 11th house the 10th house etc., in equal intervals of time until it sets when it reaches the descendant or the 7th house. Again from the 7th to the 1st house it passes over the different houses in equal intervals of time which is, however, not necessarily the same as the above mentioned interval but the sum of the two is always 4 hours. When the planet crosses the upper meridian it is on the 10th house or M.C. and at the time of crossing the lower meridian it is on the 4th house or the I.C. The moments of the two meridian passages are just mid-way between the rising and setting times, and the lower meridian passage takes place 12 hours* after its passage over the upper meridian. The time interval from the rising to the meridian passage or from the M. Pass. to setting is called the semi-diurnal arc, and similarly the time-interval from the setting to the lower. M. Pass. or from the lower M. Pass. to the rising is called the semi-nocturnal arc. One third of the semi-arc is the time required by the planet in passing over the successive houses. When the time of meridian passage of a planet on a particular day is known and also the value of the semi-arc is known, the timings of its passage over other houses for that day can easily be tabulated, from which the house position of the planet at any moment on that day can be ascertained.

*In fact it slightly differs from 12 hours

The required time of meridian passage* of the planet, which is not available in ordinary Ephemerides, can be ascertained as being the moment of equality of the R.A. of the planet with the sidereal time of the moment. In finding the semi-arc, the declination of the planet (=δ) is required, which is given in all Ephemerides. Let ϕ = latitude of the place, and C = ascensional difference. Then from the usual formula

$$\sin C = \tan \phi \tan \delta$$

find the value of C in degrees and minutes and then convert it into hours, minutes, etc. †

Now Semi-diurnal Arc = $6h + C$

And Semi-nocturnal Arc = $12h$—Semi-diur. Arc = $6h - C$.

The exact method of calculation of the house position of a planet according to the semi-arc system has been described above. But due to the complications of the calculation and non-availability of the M. Pass. times in ordinary Ephemerides, the following simple rule is followed in ordinary tables of houses at the sacrifice of some amount of accuracy, considering that the planets have got no latitude and are just on the ecliptic. The points on the ecliptic which at any particular sidereal time fulfil the above mentioned condition *viz.*, are away from the meridian by one-third or two-thirds of the semi-diurnal arc, are tabulated in the usual Tables of Houses as the cusps of the 11th house and the 12th house or of the 9th house and the 8th house respectively, as the case may be. The amount of arc by which a planet has advanced in a house from the preceding cusp as compared with the total space covered by that house is the measure of the house position of the planet, which can easily be obtained when the cusps of the houses are available. But in exact calculation in which the declination of the planet is utilised, the real house-position differs much in many cases from the house-position obtained from the above simple rule when the planet's latitude is appreciable

A table is given below showing the extent of different houses for certain degrees of latitude of place, as obtained from the usual tables of houses on the Placidian system. The given difference between the 10th house and the 11th house when added to the M.C. will give the 11th house according to this system. And the given difference between the 11th and the 12th houses added to the 11th house thus obtained will give the 12th house. Adding to this the diference between the 12th and the 1st. houses, we get the 1st. house or the Ascendant, which has of course already been obtained separately. Similarly by adding to the Ascendant the difference between the 1st. and the 2nd houses we get the 2nd house and similarly the 3rd house is also obtained. Although the table is not an exhaustive one, yet will serve the purpose quite well like the published tables on the semi-arc system, as the value for the exact degree of the latitude can easily be obtained by simple proportion between the results of two tables.

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* The M. Pass time is given in the 'Indian Ephemeris'.

† Approximate values of C, the ascensional difference, are however readily available from a table given in the 'Indian Ephemeris'.

Distance between the houses according to the Semi-arc system

Sid. Time		Latitude 0°					Latitude 7° N					Latitude 13° N				
		10th-11th	11th-12th	12th-Asc.	Asc.-2nd	2nd-3rd	10th-11th	11th-12th	12th-Asc.	Asc.-2nd	2nd-3rd	10th-11th	11th-12th	12th-Asc.	Asc.-2nd	2nd-3rd
h	m	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°
0	0	32.2	29.9	27.9	27.9	29.9	32.7	31.1	29.0	26.8	28.8	33.2	32.2	29.9	25.7	27.8
0	30	31.8	29.2	27.7	28.2	30.6	32.4	30.5	28.7	27.0	29.4	33.0	31.5	29.5	25.9	28.4
1	0	31.2	28.7	27.6	28.7	31.2	32.0	29.9	28.5	27.4	30.0	32.6	30.8	29.2	26.3	29.1
1	30	30.6	28.2	27.7	29.2	31.8	31.4	29.4	28.4	27.9	30.6	32.1	30.3	29.0	26.7	29.7
2	0	29.9	27.9	27.9	29.9	32.2	30.7	28.9	28.5	28.5	31.2	31.5	29.8	28.9	27.3	30.3
2	30	29.3	27.7	28.2	30.6	32.5	30.2	28.6	28.7	29.1	31.5	31.0	29.5	29.0	27.8	30.7
3	0	28.7	27.6	28.7	31.2	32.6	29.6	28.5	29.0	29.7	31.7	30.5	29.3	29.1	28.4	31.0
3	30	28.3	27.7	29.2	31.8	32.5	29.2	28.5	29.4	30.2	31.8	30.0	29.2	29.3	28.9	31.2
4	0	27.9	27.9	29.9	32.2	32.2	28.8	28.6	29.8	30.7	31.7	29.7	29.2	29.6	29.4	31.2
4	30	27.7	28.2	30.6	32.5	31.8	28.6	28.9	30.2	31.0	31.4	29.4	29.4	29.8	29.8	31.1
5	0	27.6	28.7	31.2	32.6	31.2	28.5	29.2	30.6	31.2	31.0	29.3	29.6	30.1	30.1	30.9
5	30	27.7	29.2	31.7	32.5	30.6	28.6	29.6	30.9	31.3	30.6	29.3	29.9	30.2	30.2	30.6
6	0	27.9	29.9	32.2	32.2	29.9	28.7	30.1	31.2	31.2	30.1	29.5	30.2	30.3	30.3	30.2
6	30	28.3	30.6	32.5	31.7	29.2	29.0	30.6	31.3	30.9	29.6	29.8	30.6	30.2	30.2	29.9
7	0	28.7	31.2	32.6	31.2	28.7	29.5	31.0	31.2	30.6	29.2	30.0	30.9	30.1	30.1	29.6
7	30	29.2	31.8	32.5	30.6	28.2	29.9	31.4	31.0	30.2	28.9	30.5	31.1	29.8	29.8	29.4
8	0	29.9	32.2	32.2	29.9	27.9	30.4	31.7	30.7	29.8	28.6	30.9	31.2	29.4	29.6	29.2
8	30	30.5	32.5	31.8	29.2	27.7	30.9	31.8	30.2	29.4	28.5	31.4	31.2	28.9	29.3	29.2
9	0	31.2	32.6	31.2	28.7	27.6	31.5	31.7	29.7	29.0	28.5	31.7	31.0	28.4	29.1	29.3
9	30	31.7	32.5	30.6	28.2	27.7	31.9	31.5	29.1	28.7	28.6	32.0	30.7	27.8	29.0	29.5
10	0	32.2	32.2	29.9	27.9	27.9	32.2	31.2	28.5	28.5	28.9	32.2	30.3	27.3	28.9	29.8
10	30	32.5	31.8	29.2	27.7	28.2	32.3	30.6	27.9	28.4	29.4	32.2	29.7	26.7	29.0	30.3
11	0	32.6	31.2	28.7	27.6	28.7	32.2	30.0	27.4	28.5	29.9	32.0	29.1	26.3	29.2	30.8
11	30	32.5	30.6	28.2	27.7	29.2	32.0	29.4	27.0	28.7	30.5	31.7	28.4	25.9	29.5	31.5
12	0	32.2	29.9	27.9	27.9	29.9	31.6	28.8	26.8	29.0	31.1	31.2	27.8	25.7	29.9	32.2
12	30	31.8	29.2	27.7	28.2	30.6	31.2	28.2	26.6	29.4	31.7	30.6	27.2	25.7	30.4	32.8
13	0	31.2	28.7	27.6	28.7	31.2	30.5	27.5	26.7	30.0	32.4	29.9	26.7	25.8	31.1	33.5
13	30	29.6	28.2	27.7	29.2	31.8	29.8	27.2	26.8	30.6	32.9	29.2	26.3	26.0	31.9	33.9
14	0	29.9	27.9	27.9	29.9	32.2	29.1	26.9	27.2	31.4	33.3	28.3	26.0	26.5	32.8	34.3
14	30	29.3	27.7	28.2	30.6	32.5	28.4	26.7	27.7	32.1	33.5	27.7	25.8	27.0	33.5	34.4
15	0	28.7	27.6	28.7	31.2	32.6	27.8	26.7	28.3	32.8	33.4	27.0	25.8	27.9	34.4	34.3
15	30	28.3	27.7	29.2	31.8	32.5	27.4	26.8	29.0	33.4	33.2	26.5	26.0	28.8	35.0	33.9
16	0	27.9	27.9	29.9	32.2	32.2	27.0	27.1	30.0	33.8	32.7	26.2	26.4	29.9	35.4	33.2
16	30	27.7	28.2	30.6	32.5	31.8	26.8	27.5	30.8	34.1	32.1	26.0	26.9	31.0	35.6	32.4
17	0	27.6	28.7	31.2	32.6	31.2	26.7	28.2	31.8	34.0	31.3	25.9	27.6	32.2	35.5	31.4
17	30	27.7	29.2	31.7	32.5	30.6	26.8	28.8	32.5	33.8	30.6	26.0	28.4	33.3	35.1	30.5
18	0	27.9	29.9	32.2	32.2	29.9	27.1	29.7	33.3	33.3	29.7	26.3	29.4	34.3	34.3	29.4
18	30	28.3	30.6	32.5	31.7	29.2	27.5	30.6	33.8	32.5	28.8	26.7	30.5	35.1	33.3	28.4
19	0	28.7	31.2	32.6	31.2	28.7	28.0	31.3	34.0	31.8	28.2	27.4	31.4	35.5	32.2	27.6
19	30	29.2	31.8	32.5	30.6	28.2	28.7	32.1	34.1	30.8	27.5	28.1	32.4	35.6	31.0	26.9
20	0	29.9	32.2	32.2	29.9	27.9	29.4	32.7	33.8	30.0	27.1	28.9	33.2	35.4	29.9	26.4
20	30	30.5	32.5	31.8	29.2	27.7	30.2	33.2	33.4	29.0	26.8	29.8	33.9	35.0	28.8	26.0
21	0	31.2	32.6	31.2	28.7	27.6	31.0	33.4	32.8	28.3	26.7	30.6	34.3	34.4	27.9	25.8
21	30	31.7	32.5	30.6	28.2	27.7	31.6	33.5	32.1	27.7	26.7	31.6	34.4	33.5	27.0	25.8
22	0	32.2	32.2	29.9	27.9	27.9	32.1	33.3	31.4	27.2	26.9	32.1	34.3	32.8	26.5	26.0
22	30	32.5	31.8	29.2	27.7	28.2	32.7	32.9	30.6	26.8	27.2	32.7	33.9	31.9	26.0	26.3
23	0	32.6	31.2	28.7	27.6	28.7	32.9	32.4	30.0	26.7	27.5	33.0	33.5	31.1	25.8	26.7
23	30	32.5	30.6	28.2	27.7	29.2	32.9	31.7	29.4	26.6	28.2	33.3	32.8	30.4	25.7	27.2
24	0	32.2	29.9	27.9	27.9	29.9	32.7	31.1	29.0	26.8	28.8	33.2	32.2	29.9	25.7	27.8

Distance between the houses according to the Semi-arc system

Sid. Time		Latitude 19°					Latitude 23° N					Latitude 25°19' N				
		10th-11th	11th-12th	12th-Asc.	Asc.-2nd	2nd-3rd	10th-11th	11th-12th	12th-Asc.	Asc.-2nd	2nd-3rd	10th-11th	11th-12th	12th-Asc.	Asc.-2nd	2nd-3rd
h	*m*	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°
0	0	33.7	33.3	30.8	24.6	26.8	34.1	34.1	31.4	23.8	26.1	34	35	32	23	26
0	30	33.6	32.5	30.2	24.8	27.5	34.0	33.4	30.7	24.0	26.8	34	34	31	24	26
1	0	33.3	31.9	29.8	25.1	28.2	33.8	32.6	30.2	24.3	27.5	34	33	31	23	27
1	30	32.9	31.3	29.5	25.5	28.8	33.4	32.0	29.8	24.7	28.2	34	32	30	24	28
2	0	32.3	30.7	29.3	26.0	29.5	32.9	31.4	29.5	25.2	28.9	33	32	30	24	29
2	30	31.8	30.3	29.2	26.6	30.0	32.4	30.9	29.3	25.7	29.4	33	31	29	26	29
3	0	31.3	30.0	29.2	27.2	30.4	31.9	30.5	29.2	26.3	29.9	32	31	29	26	30
3	30	30.9	29.9	29.3	27.7	30.6	31.5	30.3	29.2	26.9	30.2	32	31	29	26	30
4	0	30.6	29.8	29.3	28.2	30.8	31.1	30.2	29.1	27.4	30.4	32	30	29	27	30
4	30	30.3	29.9	29.4	28.6	30.8	30.9	30.2	29.1	27.9	30.5	31	31	29	27	30
5	0	30.1	30.1	29.5	29.0	30.7	30.7	30.2	29.1	28.3	30.6	31	31	28	28	31
5	30	30.1	30.2	29.5	29.3	30.5	30.7	30.3	29.0	28.6	30.5	31	31	28	28	31
6	0	30.2	30.3	29.4	29.4	30.3	30.7	30.4	28.9	28.9	30.4	31	31	28	28	31
6	30	30.4	30.5	29.3	29.5	30.2	30.9	30.5	28.6	29.0	30.3	31	31	28	28	31
7	0	30.7	30.7	29.0	29.5	30.0	31.1	30.6	28.3	29.1	30.2	31	31	28	28	31
7	30	31.0	30.8	29.6	29.4	29.9	31.4	30.5	27.9	29.1	30.2	32	30	27	29	31
8	0	31.3	30.8	28.2	29.3	29.8	31.8	30.4	27.4	29.1	30.2	32	30	27	29	30
8	30	31.6	30.6	27.7	29.3	29.9	31.9	30.2	26.9	29.2	30.3	32	30	26	29	31
9	0	31.9	30.4	27.2	29.2	30.0	32.2	29.9	26.3	29.2	30.5	32	30	26	29	31
9	30	32.1	30.0	26.6	29.2	30.3	32.3	29.4	25.7	29.3	30.9	32	29	26	29	31
10	0	32.2	29.5	26.0	29.3	30.7	32.1	28.9	25.2	29.5	31.4	32	29	24	30	32
10	30	32.0	28.8	25.5	29.5	31.3	31.9	28.2	24.7	29.8	32.0	32	28	24	30	32
11	0	31.7	28.2	25.1	29.8	31.9	31.6	27.5	24.3	30.2	32.6	32	27	23	31	33
11	30	31.4	27.5	24.8	30.2	32.5	31.1	26.8	24.0	30.7	33.4	31	26	24	31	34
12	0	30.8	26.8	24.6	30.8	32.3	30.5	26.1	23.8	31.4	34.1	30	26	23	32	35
12	30	30.1	26.2	24.6	31.4	34.0	29.7	25.6	23.8	32.1	34.8	29	25	24	32	36
13	0	29.3	25.7	24.7	32.3	34.6	28.8	25.0	24.0	33.1	35.5	29	24	24	33	36
13	30	28.5	25.3	25.0	33.2	35.2	28.0	24.6	24.3	34.1	36.0	28	24	24	34	37
14	0	27.3	25.0	25.6	34.2	35.4	27.1	24.3	24.9	35.2	36.3	27	23	25	36	37
14	30	26.9	24.9	26.3	35.1	35.4	26.3	24.2	25.7	36.3	36.2	26	23	26	37	37
15	0	26.2	24.9	27.3	36.1	35.2	25.6	24.3	26.8	37.3	35.8	25	24	27	37	37
15	30	25.7	25.2	28.4	36.8	34.6	25.1	24.5	28.1	38.1	35.2	25	24	28	39	35
16	0	25.3	25.6	29.8	37.3	33.7	24.7	25.0	29.6	38.6	34.1	24	25	29	40	34
16	30	25.1	26.2	31.1	37.4	32.8	24.6	25.6	31.2	38.7	32.9	24	25	32	39	33
17	0	25.1	27.0	32.7	37.1	31.5	24.4	26.6	33.0	38.4	31.6	24	26	33	40	31
17	30	25.2	28.0	34.0	36.5	30.3	24.6	27.6	34.7	37.5	30.2	24	27	36	38	30
18	0	25.5	29.1	35.4	35.4	29.1	24.9	28.8	36.3	36.3	28.8	25	28	37	37	28
18	30	26.0	30.3	36.5	34.0	28.0	25.4	30.2	37.5	34.7	27.6	25	30	38	36	27
19	0	26.6	31.5	37.1	32.7	27.0	26.0	31.6	38.4	33.0	26.6	26	31	40	33	26
19	30	27.4	32.8	37.4	31.1	26.2	27.0	32.9	38.7	31.2	25.6	27	33	39	32	25
20	0	28.3	33.7	37.3	29.8	25.6	28.0	34.1	38.6	29.6	25.0	28	34	40	29	25
20	30	29.3	34.6	36.8	28.4	25.2	29.0	35.2	38.1	28.1	24.5	29	35	39	28	24
21	0	30.3	35.2	36.1	27.3	24.9	30.2	35.8	37.3	26.8	24.3	30	37	37	27	24
21	30	31.4	35.4	35.1	26.3	24.9	31.3	36.2	36.3	25.7	24.2	31	37	37	26	23
22	0	32.5	35.4	34.2	25.6	25.0	32.2	36.3	35.2	24.9	24.3	32	37	36	25	23
22	30	32.9	35.1	33.2	25.0	25.3	33.0	36.0	34.1	24.3	24.6	33	37	34	24	24
23	0	33.4	34.6	32.3	24.7	25.7	33.6	35.5	33.1	24.0	25.0	34	36	33	24	24
23	30	33.7	34.0	31.4	24.6	26.2	34.0	34.8	32.1	23.8	25.6	34	36	32	24	25
24	0	33.7	33.3	30.8	24.6	26.8	34.1	34.1	31.4	23.8	26.1	34	35	32	23	26

Distance between the houses according to the Semi-arc system

Sid. Time	10th House		Latitude 28° N					Latitude 35° N					Latitude 60° N				
	Sayana	Nirayana	10th-11th	11th-12th	12th-Asc.	Asc.-2nd	2nd-3rd	10th-11th	11th-12th	12th-Asc.	Asc.-2nd	2nd-3rd	10th-11th	11th-12th	12th-Asc.	Asc.-2nd	2nd-3rd
h m	°	° °	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°
0 0	0.0	11 7.0	35	35	32	23	25	36	37	33	21	24	36	39	33	20	23
0 30	8.2	11 15.2	35	25	31	23	26	37	35	32	22	24	37	37	32	20	24
1 0	16.3	11 23.3	35	34	31	23	27	37	34	31	22	25	37	36	31	21	24
1 30	24.3	0 1.3	34	33	30	24	27	36	34	30	23	26	36	36	30	21	25
2 0	32.2	0 9.2	34	32	30	24	28	36	33	29	23	27	36	34	30	22	26
2 30	39.9	0 16.9	33	32	29	25	29	35	33	29	23	28	36	33	29	22	26
3 0	47.5	0 24.5	33	31	29	25	29	35	32	29	24	28	35	33	29	22	28
3 30	54.8	1 1.8	32	31	29	26	30	35	31	29	24	29	35	32	28	23	29
4 0	62.1	1 9.1	32	31	29	26	30	34	31	28	26	29	34	32	28	24	29
4 30	69.2	1 16.2	32	31	29	27	30	34	31	27	27	29	34	31	28	24	30
5 0	76.2	1 23.2	32	31	29	27	30	34	30	27	28	29	34	31	27	25	30
5 30	83.1	2 0.1	31	30	28	28	30	34	30	27	27	30	34	30	27	26	30
6 0	90.0	2 7.0	31	30	28	28	30	33	30	27	27	30	33	31	26	26	31
6 30	96.9	2 13.9	32	30	28	28	30	32	30	27	27	30	33	30	26	27	30
7 0	103.8	2 20.8	32	30	27	29	31	32	29	28	27	30	33	30	25	27	31
7 30	110.8	2 27.8	32	30	27	29	31	32	29	27	27	31	33	30	24	28	31
8 0	117.9	3 4.9	32	30	26	29	31	32	29	26	28	31	33	29	24	28	32
8 30	125.2	3 12.2	32	30	26	29	31	32	29	24	29	31	33	29	23	28	32
9 0	132.5	3 19.5	32	29	25	29	31	32	28	24	29	32	33	28	22	29	33
9 30	140.1	3 27.1	32	29	25	29	32	32	28	23	29	33	33	27	22	29	33
10 0	147.8	4 4.8	32	28	24	30	32	32	27	23	29	33	32	26	22	30	34
10 30	155.7	4 12.7	32	27	24	30	33	31	26	23	30	34	32	25	21	30	36
11 0	163.7	4 20.7	31	27	23	31	34	31	25	22	31	34	31	24	21	31	36
11 30	171.8	4 28.8	31	26	23	31	35	30	24	22	32	35	30	24	20	32	37
12 0	180.0	5 7.0	30	25	23	32	35	29	24	21	33	37	29	23	20	33	39
12 30	188.2	5 15.2	29	25	23	33	36	28	24	21	34	37	28	22	20	35	39
13 0	196.3	5 23.3	28	24	23	34	37	28	23	21	35	38	27	21	20	37	40
13 30	204.3	6 1.3	27	24	23	35	37	27	22	21	37	39	26	21	20	38	41
14 0	212.2	6 9.2	26	23	24	37	37	26	21	23	38	39	24	21	21	41	41
14 30	219.9	6 16.9	26	23	25	38	37	24	22	23	40	40	23	21	22	43	40
15 0	227.5	6 24.5	25	23	26	39	37	24	22	25	42	39	23	20	24	44	40
15 30	234.8	7 1.8	24	24	28	40	36	23	22	26	44	38	22	21	25	46	39
16 0	242.1	7 9.1	24	24	29	41	35	22	23	29	44	35	21	22	28	47	36
16 30	249.2	7 16.2	24	25	31	41	33	22	24	31	45	34	21	23	30	47	34
17 0	256.2	7 23.2	24	26	33	40	32	22	25	34	44	32	21	24	34	46	32
17 30	263.1	8 0.1	24	27	35	39	30	23	26	37	43	29	21	25	38	44	29
18 0	270.0	8 7.0	24	28	37	37	28	23	27	40	40	27	22	27	41	41	27
18 30	276.9	8 13.9	25	30	39	35	27	22	29	43	37	26	23	29	44	38	25
19 0	283.8	8 20.8	25	32	40	33	26	23	32	44	34	25	23	32	46	34	24
19 30	290.8	8 27.8	26	33	41	31	25	24	34	45	31	24	25	34	47	30	23
20 0	297.9	9 4.9	28	35	41	29	24	27	35	44	29	23	26	36	47	28	22
20 30	305.2	9 12.2	29	36	40	28	24	27	38	44	26	22	27	39	46	25	21
21 0	312.5	9 19.5	30	37	39	26	23	28	39	42	25	22	29	40	44	24	20
21 30	320.1	9 27.1	31	37	38	25	23	31	40	40	23	22	31	40	43	22	21
22 0	327.8	10 4.8	32	37	37	24	23	33	39	38	23	21	32	41	41	21	21
22 30	335.7	10 12.7	33	37	35	23	24	34	39	37	21	22	34	41	38	20	21
23 0	343.7	10 20.7	34	37	34	23	24	35	38	35	21	23	35	40	37	20	21
23 30	351.8	10 28.8	34	36	33	23	25	36	37	34	21	24	36	39	35	20	22
24 0	360.0	11 7.0	35	35	32	23	25	36	37	33	21	24	36	39	33	20	23

Distance between the houses according to the Semi-arc system

Sid. Time		10th House		Latitude 45° N					Latitude 51°32' N					Latitude 66° N				
		Sayana	Nirayana	10th-11th	11th-12th	12th-Asc.	Asc.-2nd	2nd-3rd	10th-11th	11th-12th	12th-Asc.	Asc.-2nd	2nd-3rd	10th-11th	11th-12th	12th-Asc.	Asc.-2nd	2nd-3rd
h	m	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°
0	0	0.0	11	7.0	37	41	34	18	22	39	43	35	15	21	43	49	33	13	17
0	30	8.2	11	15.2	38	39	32	19	23	39	42	33	16	21	44	47	30	14	18
1	0	16.3	11	23.3	38	38	31	19	23	39	41	31	17	22	45	44	29	14	19
1	30	24.3	0	1.3	38	36	31	19	25	39	39	30	18	23	45	41	28	15	20
2	0	32.2	0	9.2	37	36	29	21	25	39	38	29	18	24	45	39	27	16	21
2	30	39.9	0	16.9	37	34	29	21	26	39	36	28	19	25	44	38	26	16	22
3	0	47.5	0	24.5	37	33	29	21	27	39	34	28	20	25	44	36	25	17	23
3	30	54.8	1	1.8	36	33	28	22	27	38	34	27	20	27	43	34	25	18	24
4	0	62.1	1	9.1	36	32	27	23	28	38	32	27	21	27	42	34	23	19	25
4	30	69.2	1	16.2	35	32	27	23	29	37	32	26	22	28	42	32	23	19	27
5	0	76.2	1	23.2	35	31	26	25	29	37	31	25	23	29	41	31	23	19	28
5	30	83.1	2	0.1	35	30	26	25	30	36	31	25	23	29	40	30	22	21	28
6	0	90.0	2	7.0	34	31	25	25	31	36	30	24	24	30	40	29	21	21	29
6	30	96.9	2	13.9	34	30	25	26	30	36	29	23	25	31	39	28	21	22	30
7	0	103.8	2	20.8	34	29	25	26	31	35	29	23	25	31	38	28	19	23	31
7	30	110.8	2	27.8	34	29	23	27	32	35	28	22	26	32	37	27	19	23	32
8	0	117.9	3	4.9	34	28	23	27	32	35	27	21	27	32	37	25	19	23	34
8	30	125.2	3	12.2	34	27	22	28	33	34	27	20	27	34	36	24	18	25	34
9	0	132.5	3	19.5	33	27	21	29	33	34	25	20	28	34	35	23	17	25	36
9	30	140.1	3	27.1	33	26	21	29	34	33	25	19	28	36	34	22	16	26	38
10	0	147.8	4	4.8	32	25	21	29	36	32	24	18	29	38	32	21	16	27	39
10	30	155.7	4	12.7	31	25	19	31	36	31	23	18	30	39	31	20	15	28	41
11	0	163.7	4	20.7	31	23	19	31	38	30	22	17	31	41	29	19	14	29	44
11	30	171.8	4	28.8	29	23	19	32	39	29	21	16	33	42	27	18	14	30	47
12	0	180.0	5	7.0	28	22	18	34	41	27	21	15	35	43	25	17	13	33	49
12	30	188.2	5	15.2	27	21	18	36	42	26	19	16	37	44	24	16	12	35	52
13	0	196.3	5	23.3	26	20	18	38	43	25	18	16	39	46	22	15	12	37	55
13	30	204.3	6	1.3	25	19	19	40	43	23	18	16	41	48	20	14	12	41	57
14	0	212.2	6	9.2	23	20	19	42	44	22	17	16	45	48	18	14	11	45	60
14	30	219.9	6	16.9	22	19	21	45	43	21	17	16	49	47	17	12	12	52	58
15	0	227.5	6	24.5	21	20	21	48	41	20	17	17	53	45	15	13	11	60	56
15	30	234.8	7	1.8	21	19	24	50	39	19	17	20	56	42	14	12	13	69	50
16	0	242.1	7	9.1	20	20	26	52	37	18	18	22	60	39	13	13	14	78	43
16	30	249.2	7	16.2	20	21	29	52	34	18	19	26	60	35	13	13	17	85	35
17	0	256.2	7	23.2	20	22	34	50	32	18	20	32	55	31	13	13	25	86	28
17	30	263.1	8	0.1	20	24	39	47	29	18	23	38	55	27	13	15	38	78	22
18	0	270.0	8	7.0	20	26	44	44	26	18	25	47	47	24	13	18	59	59	18
18	30	276.9	8	13.9	21	29	47	39	24	19	27	55	38	23	14	22	78	38	15
19	0	283.8	8	20.8	22	32	50	34	22	20	31	59	32	20	15	28	86	25	13
19	30	290.8	8	27.8	24	34	52	29	21	22	35	60	26	19	17	35	85	17	13
20	0	297.9	9	4.9	25	37	52	26	20	23	39	60	22	18	19	43	78	14	13
20	30	305.2	9	12.2	27	39	50	24	19	26	42	56	20	17	22	50	69	13	12
21	0	312.5	9	19.5	29	41	48	21	20	28	45	53	17	17	25	56	60	11	13
21	30	320.1	9	27.1	30	43	45	21	19	30	47	49	16	17	29	58	52	12	12
22	0	327.8	10	4.8	32	44	42	19	20	32	48	45	16	17	32	60	45	11	14
22	30	335.7	10	12.7	34	43	40	19	19	34	48	41	16	18	36	57	41	12	14
23	0	343.7	10	20.7	35	43	38	18	20	36	46	39	16	18	39	55	37	12	15
23	30	351.8	10	28.8	36	42	36	18	21	38	44	37	16	19	41	52	35	12	16
24	0	360.0	11	7.0	37	41	34	18	22	39	43	35	15	21	43	49	33	13	17

Construction of the Tables

The tables of the different houses on the Placidian system can be constructed in the following way. Take any degree of longitude and call it *A*; find *D*, the declination of that point, and also *B* corresponding to *A* (from the table on page 84). Using the values of *D* and ϕ, find *C* and ascertain the semi-diurnal arc (=S.D.A.). Now the point *A* becomes the cusp of the different houses at the moments of the following sidereal time :—

10th house at S.T. = *B*, 11th house at S.T. = $B-{}^{1}/_{3}$ (S.D.A.).
12th house at S.T. = $B-{}^{2}/_{3}$ (S.D.A.), 1st house at S.T. = *B*–S.D.A.
2nd house at S.T. = $B-{}^{2}/_{3}$ (S.D.A.)–4*h*,
3rd house at S.T. = $B-{}^{1}/_{3}$ (S.D.A)–8*h*.

In this way we get the different values of sidereal time for a particular degree of the ecliptic becoming the cusp of the different houses. These values can be reversed and re-arranged in a tabular from (as in the usual tables of houses) placing all the cusps together against a given value of the sidereal time, after making small proportional changes where necessary.

It will be observed that for all latitudes, the cusp of the 2nd house becomes exactly the 12th house just after 4 hours of sidereal time, and similarly the 3rd house becomes the 11th house after 8 hours of sidereal time. Hence the 2nd and 3rd houses, which are repetitions of the 12th and the 11th houses, need not separately be calculated for the purpose of this table.

The following is a simple and approximate method of constructing the tables. Although the values of the cusps obtained in this method are not exact, yet the error is small and does not exceed a degree.

Lat. of place	*Reduced Lat.* XII or II House		*Reduced Lat.* XI or III House		Lat. of place	*Reduced Lat.* XII or II House		*Reduced Lat.* XI or III House		Lat. of place	*Reduced Lat.* XII or II House		*Reduced Lat.* XI or III House	
°	°	'	°	'	°	°	'	°	'	°	°	'	°	'
0	0	0	0	0	21	14	24	7	20	41	30	25	16	30
1	0	39	0	21	22	15	7	7	42	42	31	18	17	3
2	1	21	0	39	22°35'	15	32	7	55	43	32	16	17	41
3	2	0	1	0	23	15	50	8	5	44	33	12	18	18
4	2	41	1	21	24	16	36	8	30	45	34	10	18	57
5	3	20	1	41	25	17	18	8	52	46	35	7	19	35
6	4	2	2	0	26	18	3	9	17	47	36	7	20	17
7	4	41	2	20	27	18	48	9	42	48	37	9	21	1
8	5	23	2	41	28	19	37	10	8	49	38	9	21	44
9	6	4	3	2	29	20	25	10	34	50	39	12	22	31
10	6	43	3	23	30	21	9	10	59	51	40	18	23	22
11	7	24	3	43	31	21	56	11	26	51°32'	40	52	23	48
12	8	5	4	4	32	22	46	11	54	52	41	22	24	10
13	8	45	4	24	33	23	33	12	21	53	42	31	25	5
14	9	26	4	45	34	24	22	12	49	54	43	37	26	0
15	10	10	5	8	35	25	10	13	17	55	44	48	26	59
16	10	50	5	28	36	26	1	13	48	56	45	58	27	59
17	11	30	5	49	37	26	52	14	18	57	47	11	29	5
18	12	14	6	12	38	27	45	14	50	58	48	26	30	14
19	12	58	6	34	39	28	37	15	22	59	49	43	31	28
20	13	41	6	57	40	29	32	15	56	60	51	3	32	47

Find from the above table the reduced latitude (or polar elevation) for the house of which the cusp is required. Then make the following modification of the given sidereal time of the moment according to the house required.

For XI House —4 hours,
For II House +2 hours

For XII House —2 hours,
For III House +4 hours

Now using the Tables of Ascendants for the reduced latitude as obtained above, find the ascendant corresponding to the above mentioned modified sidereal time. Then this ascendant will be the cusp of the house required.

(4) Regiomontanus's &
(5) Campanus's Systems

In these two system the celestial sphere is divided into twelve divisions by great circles, all passing through the North and South points of the horizon. In the system of Regiomontanus, these circles intersect the celestial equator at equal distances *viz.*, 30° degrees and in the Campanus's system the prime vertical (the great circle passing through the East and West points of the horizon and the Zenith of the place) is equally divided by these circles. These dividing great circles intersect the ecliptic at points which are called the cusps of the houses. The division commences from the horizon, and the meridian is also one of the dividing circles. Consequently the ascendant, descendant, the M.C. and the I.C. are the same in these cases also as in other systems of division.

The excellence of the Campanus's system lies in the fact that it divides the celestial sphere into twelve *equal* divisions. The angles contained between the dividing circles at their common meeting points (*viz.*, the north and the south cardinal points) are all equal. In the system of Regiomontanus, however, these subtended angles are not all equal. But even then, in consideration of other factors this latter system of division has been approved by many and termed as the rational method (*modus rationalis*).

For the purpose of ascertaining the cusps of the different houses according to these two systems, a table is given below showing the reduced latitude (or polar elevation) and the reduction to the sidereal time for different houses at each degree of latitude from 0° to 60° North. Using the tables of ascendant for the above 'reduced latitude', find the ascendant corresponding to the corrected sidereal time for the house concerned, and this will be the exact value of the cusp of the required house.

Another table is given on page 97 showing the distance between the houses according to the systems of Regiomontanus and of Campanus calculated for latitude 22° 35' North. For other latitudes the houses can easily be calculated by the above method.

SIDEREAL TIME-CORRECTION AND REDUCED LATITUDE (POLAR ELEVATION) FOR DIFFERENT HOUSES

Lat. of Place (N)	Regiomontanus						Campanus					
	12th & 2nd Houses				11th & 3rd Houses			12th & 2nd Houses			11th & 3rd Houses		
	Corr. to Sid. time 12th(–), 2nd (+)		Reded. Latitude		Corr. to Sid. time 11th(–) 3rd(+)	Reded Latitude		Corr. to Sid. time 12th(–) 2nd (+)		Reded. Latitude	Corr. to Sid. time 11th(–) 3rd (+)	Reded. Latitude
°	h	m	s	°	'	h m s	° '	h	m	s	° '	h m s	° '
0	2	0	0	0	0	4 0 0	0 0	2	0	0	0 0	4 0 0	0 0
2	2	0	0	1	4	4 0 0	1 0	2	0	4	1 44	4 0 4	1 0
4	2	0	0	3	28	4 0 0	2 0	2	0	16	3 28	4 0 16	2 0
6	2	0	0	5	13	4 0 0	3 0	2	0	32	5 12	4 0 32	3 0
7	2	0	0	6	5	4 0 0	3 30	2	0	44	6 4	4 0 44	3 30
8	2	0	0	6	57	4 0 0	4 1	2	1	0	6 56	4 1 0	4 0
10	2	0	0	8	41	4 0 0	5 2	2	1	32	8 39	4 1 32	4 59
12	2	0	0	10	26	4 0 0	6 4	2	2	12	10 22	4 2 12	5 58
13	2	0	0	11	19	4 0 0	6 35	2	2	36	11 14	4 2 36	6 28
14	2	0	0	12	11	4 0 0	7 6	2	3	0	12 6	4 3 0	6 57
15	2	0	0	13	4	4 0 0	7 38	2	3	28	12 57	4 3 24	7 26
16	2	0	0	13	57	4 0 0	8 9	2	3	56	13 49	4 3 52	7 56
17	2	0	0	14	50	4 0 0	8 41	2	4	28	14 40	4 4 24	8 25
18	2	0	0	15	44	4 0 0	9 14	2	5	4	15 32	4 4 56	8 54
19	2	0	0	16	37	4 0 0	9 46	2	5	40	16 23	4 5 28	9 23
20	2	0	0	17	30	4 0 0	10 19	2	6	16	17 14	4 6 4	9 51
21	2	0	0	18	23	4 0 0	10 52	2	6	56	18 5	4 6 40	10 20
22	2	0	0	19	17	4 0 0	11 25	2	7	40	18 56	4 7 20	10 48
2235'	2	0	0	19	48	4 0 0	11 45	2	8	7	19 26	4 7 47	11 4
23	2	0	0	20	11	4 0 0	11 58	2	8	24	19 47	4 8 4	11 16
24	2	0	0	21	5	4 0 0	12 32	2	9	12	20 37	4 8 44	11 44
25	2	0	0	21	59	4 0 0	13 7	2	10	0	21 28	4 9 32	12 12
26	2	0	0	22	53	4 0 0	13 41	2	10	52	22 19	4 10 16	12 40
27	2	0	0	23	48	4 0 0	14 16	2	11	48	23 10	4 11 8	13 8
28	2	0	0	24	43	4 0 0	14 53	2	12	44	24 0	4 11 56	13 35
29	2	0	0	25	38	4 0 0	15 29	2	13	44	24 50	4 12 48	14 2
30	2	0	0	26	34	4 0 0	16 6	2	14	44	25 40	4 13 44	14 29
31	2	0	0	27	29	4 0 0	16 43	2	15	52	26 30	4 14 40	14 56
32	2	0	0	28	25	4 0 0	17 20	2	17	0	27 20	4 15 40	15 23
33	2	0	0	29	21	4 0 0	17 59	2	18	12	28 9	4 16 40	15 49
34	2	0	0	30	17	4 0 0	18 38	2	19	24	28 58	4 17 40	16 15
35	2	0	0	31	14	4 0 0	19 18	2	20	44	29 47	4 18 44	16 40
36	2	0	0	32	10	4 0 0	19 57	2	22	4	30 37	4 19 52	17 6
38	2	0	0	34	4	4 0 0	21 20	2	24	56	32 14	4 22 8	17 57
40	2	0	0	36	0	4 0 0	22 46	2	28	0	33 50	4 24 32	18 45
42	2	0	0	37	56	4 0 0	24 13	2	31	24	35 26	4 27 8	19 33
44	2	0	0	39	53	4 0 0	25 46	2	35	0	37 0	4 29 48	20 20
45	2	0	0	40	54	4 0 0	26 34	2	36	56	37 46	4 31 12	20 42
46	2	0	0	41	53	4 0 0	27 21	2	38	56	38 33	4 32 36	21 5
47	2	0	0	42	53	4 0 0	28 12	2	41	0	39 19	4 34 0	21 27
48	2	0	0	43	53	4 0 0	29 3	2	43	8	40 5	4 35 32	21 49
49	2	0	0	44	53	4 0 0	29 53	2	45	24	40 50	4 37 0	22 10
50	2	0	0	45	54	4 0 0	30 47	2	47	44	41 34	4 38 32	22 31
51	2	0	0	46	55	4 0 0	31 42	2	50	8	42 19	4 40 8	22 52
5132'	2	0	0	47	27	4 0 0	32 12	2	51	28	42 42	4 41 0	23 3
52	2	0	0	47	56	4 0 0	32 37	2	52	40	43 3	4 41 44	23 13
53	2	0	0	48	58	4 0 0	33 34	2	55	16	43 45	4 43 20	23 33
54	2	0	0	50	0	4 0 0	34 31	2	57	56	44 29	4 45 0	23 52
56	2	0	0	52	5	4 0 0	36 33	3	3	40	45 54	4 48 24	24 30
58	2	0	0	54	11	4 0 0	38 40	3	9	48	47 17	4 51 56	25 7
60	2	0	0	56	19	4 0 0	40 54	3	16	24	48 35	4 55 36	25 40

Distance between the Houses according to the system of Regiomontanus and Campanus

(Calculated for latitude 22° 35' N)

Sid. Time		10th House		Regiomontanus					Campanus				
		Sayana	Nirayana	10th-11th	11th-12th	12th-Asc.	Asc.-2nd	2nd-3rd	10th-11th	11th-12th	12th-Asc.	Asc.-2nd	2nd-3rd
h	m	°	s °	°	°	°	°	°	°	°	°	°	°
0	0	0.0	11 7.0	35.0	35.0	29.4	25.5	25.5	32.6	35.2	31.6	27.1	25.6
0	30	8.2	11 15.2	35.1	34.0	28.8	25.6	26.1	32.7	34.3	30.9	27.2	26.3
1	0	16.3	11 23.3	35.1	33.0	28.2	25.7	26.8	32.7	33.5	30.2	27.3	27.0
1	30	24.3	0 1.3	34.8	32.3	27.9	25.9	27.4	32.4	32.7	29.9	27.6	27.6
2	0	32.2	0 9.2	34.5	31.6	27.5	26.2	28.0	32.1	31.9	29.6	27.9	28.3
2	30	39.9	0 16.9	34.0	31.1	27.4	26.6	28.5	31.7	31.4	29.5	28.3	28.8
3	0	47.5	0 24.5	33.5	30.6	27.4	26.9	29.0	31.3	30.9	29.4	28.7	29.3
3	30	54.8	1 1.8	33.2	30.3	27.5	27.2	29.3	30.9	30.6	29.5	29.1	29.6
4	0	62.1	1 9.1	32.8	30.0	27.6	27.5	29.6	30.5	30.3	29.6	29.4	29.9
4	30	69.2	1 16.2	32.5	30.0	27.8	27.7	29.7	30.2	30.2	29.7	29.7	30.0
5	0	76.2	1 23.2	32.2	29.9	27.9	27.9	29.9	30.0	30.1	29.8	29.9	30.1
5	30	83.1	2 0.1	32.1	29.9	28.0	28.0	29.9	29.9	30.1	29.9	30.0	30.1
6	0	90.0	2 7.0	32.1	29.9	28.0	28.0	29.9	29.9	30.1	30.0	30.0	30.1
6	30	96.9	2 13.9	32.1	29.9	28.0	28.0	29.9	30.0	30.1	30.0	29.9	30.1
7	0	103.8	2 20.8	32.2	29.9	27.9	27.9	29.9	30.1	30.1	29.9	29.8	30.1
7	30	110.8	2 27.8	32.3	29.7	27.7	27.8	30.0	30.2	30.0	29.7	29.7	30.2
8	0	117.9	3 4.9	32.5	29.6	27.5	27.6	30.0	30.3	29.9	29.4	29.6	30.3
8	30	125.2	3 12.2	32.5	29.3	27.2	27.5	30.3	30.3	29.6	29.1	29.5	30.6
9	0	132.5	3 19.5	32.6	29.0	26.9	27.4	30.6	30.4	29.3	28.7	29.4	30.9
9	30	140.1	3 27.1	32.4	28.5	26.6	27.4	31.1	30.3	28.8	28.3	29.5	31.4
10	0	147.8	4 4.8	32.2	28.0	26.2	27.5	31.6	30.2	28.3	27.9	29.6	31.9
10	30	155.7	4 12.7	31.7	27.4	25.9	27.9	32.2	29.8	27.6	27.6	29.9	32.7
11	0	163.7	4 20.7	31.2	26.8	25.7	28.2	33.0	29.3	27.0	27.3	30.2	33.5
11	30	171.8	4 28.8	30.4	26.1	25.6	28.8	34.0	28.6	26.3	27.2	30.9	34.3
12	0	180.0	5 7.0	29.6	25.5	25.5	29.4	35.0	27.9	25.6	27.1	31.6	35.2
12	30	188.2	5 15.2	28.6	25.0	25.7	30.3	35.8	27.0	25.0	27.3	32.6	35.9
13	0	196.3	5 23.3	27.7	24.4	25.9	31.2	26.6	26.1	24.5	27.4	33.6	36.7
13	30	204.3	6 1.3	26.7	24.2	26.4	32.4	37.1	25.1	24.2	27.9	34.9	37.1
14	0	212.2	6 9.2	25.7	23.9	26.9	33.7	37.6	24.2	23.8	28.5	36.2	37.5
14	30	219.9	6 16.9	24.9	23.9	27.9	35.0	37.4	23.4	23.8	29.5	37.6	37.1
15	0	227.5	6 24.5	24.1	23.9	28.9	36.4	37.1	22.7	23.7	30.5	39.0	36.7
15	30	234.8	7 1.8	23.6	24.3	30.2	37.5	36.2	22.2	24.1	31.9	40.0	35.6
16	0	242.1	7 9.1	23.1	24.7	31.6	38.5	35.2	21.7	24.4	33.3	41.1	34.5
16	30	249.2	7 16.2	23.0	25.5	33.2	38.8	33.7	21.5	25.2	35.0	41.3	33.0
17	0	256.2	7 23.2	22.8	26.4	34.8	39.0	32.2	21.4	26.0	36.7	41.4	31.5
17	30	263.1	8 0.1	23.1	27.7	36.2	38.1	30.8	21.6	27.2	38.2	40.6	30.0
18	0	270.0	8 7.0	23.4	29.0	37.6	37.2	29.4	21.9	28.4	39.7	39.7	28.4
18	30	276.9	8 13.9	24.1	30.8	38.1	36.2	27.7	22.4	30.4	40.6	38.2	27.2
19	0	283.8	8 20.8	24.8	32.2	39.0	34.8	26.4	23.0	31.5	41.4	36.7	26.0
19	30	290.8	8 27.8	25.8	33.7	38.8	33.2	25.5	24.0	33.0	41.3	35.0	25.2
20	0	297.9	9 4.9	26.9	35.2	38.5	31.6	24.7	25.0	34.5	41.1	33.3	24.4
20	30	305.2	9 12.2	28.2	36.2	37.5	30.2	24.3	26.2	35.6	40.0	31.9	24.1
21	0	312.5	9 19.5	29.6	37.1	36.4	28.9	23.9	27.4	36.7	39.0	30.5	23.7
21	30	320.1	9 27.1	30.9	37.4	35.0	27.9	23.9	28.6	37.1	37.6	29.5	23.8
22	0	327.8	10 4.8	32.2	37.6	33.7	26.9	23.9	29.8	37.5	36.2	28.5	23.8
22	30	335.7	10 12.7	33.2	37.1	32.4	26.4	24.2	30.8	37.1	34.9	27.9	24.2
23	0	343.7	10 20.7	34.2	36.6	31.2	25.9	24.4	31.7	36.6	33.7	27.5	26.1
23	30	351.8	10 28.8	34.6	35.8	30.3	25.7	25.0	32.2	35.9	32.6	27.3	25.0
24	0	360.0	11 7.0	35.0	35.0	29.4	25.5	25.5	32.6	35.2	31.6	27.1	25.6

Ascendant for Certain Higher Latitudes
(Nirayana Lagna)

Sid. Time	Latitude of place (North)																	
	60°			63°			66° 33			69°			72°			75°		
h	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'	s	°	'
0	3	11	35	3	14	59	3	19	32	3	23	2	3	27	46	4	3	3
1	3	20	49	3	23	31	3	27	5	3	29	50	4	3	33	4	7	43
2	3	29	58	4	2	4	4	4	49	4	6	56	4	9	47	4	12	59
3	4	9	9	4	10	41	4	12	42	4	14	14	4	16	19	4	18	40
4	4	18	23	4	19	24	4	20	43	4	21	44	4	23	6	4	24	38
5	4	27	40	4	28	7	4	28	50	4	29	20	5	0	1	5	0	46
6	5	7	0	5	7	0	5	7	0	5	7	0	5	7	0	5	7	0
7	5	16	20	5	15	53	5	15	10	5	14	40	5	13	59	5	13	14
8	5	25	37	5	24	36	5	23	17	5	22	16	5	20	54	5	19	22
9	6	4	51	6	3	19	6	1	18	5	29	46	5	27	41	5	15	20
10	6	14	2	6	11	56	6	9	11	6	7	4	6	4	13	6	1	1
11	6	23	11	6	20	29	6	16	55	6	14	10	6	10	27	6	6	17
12	7	2	25	6	29	1	6	24	28	6	20	58	6	16	14	6	10	57
13	7	11	56	7	7	38	7	1	51	6	27	24	6	21	22	6	14	45
14	7	22	6	7	16	35	7	9	6	7	3	17	6	25	30	6	17	10
14-33	7	28	13		...			...			...			...		6	17	34
14-33	7	28	13		...			...			...			...		0	17	34
15	8	3	43	7	26	24	7	16	12	7	8	15	6	27	50	0	17	13
15-14	8	6	49		...			...			...		6	27	57		...	
15-14	8	6	49		...			...			...		0	27	57		...	
16	8	18	53	8	8	33	7	23	11	7	11	9	0	26	17	0	12	54
16-09	8	21	45		...			...		7	11	14		...			...	
16-09	8	21	45		...			...		1	11	14		...			...	
17	9	14	16	8	29	7	8	0	7	1	6	49	0	14	24	0	0	22
17-59	11	5	54	11	5	10	8	6	53	11	9	6	11	7	49	11	7	26
18-00	11	7	0	11	7	0	11	7	0	11	7	0	11	7	0	11	7	0
18-01	11	8	6	11	8	50	2	7	7	11	4	54	11	6	11	11	6	34
19	0	29	44	1	14	53	2	13	53	9	7	11	9	29	36	10	13	38
19-51	1	22	15		...			...		9	2	46		...			...	
19-51	1	22	15		...			...		3	2	46		...			...	
20	1	25	7	2	5	27	2	20	49	3	2	51	9	17	43	10	1	6
20-46	2	7	11		...			...			...		9	16	3		...	
20-46	2	7	11		...			...			...		3	16	3		...	
21	2	10	17	2	17	36	2	27	48	3	5	45	3	16	10	9	26	47
21-27	2	15	47		...			...			...			...		9	26	26
21-27	2	15	47		...			...			...			...		3	26	26
22	2	21	54	2	27	25	3	4	54	3	10	43	3	18	30	3	26	50
23	3	2	4	3	6	22	3	12	9	3	16	36	3	22	38	3	29	15
24	3	11	35	3	14	59	3	19	32	3	23	2	3	27	46	4	3	3

Note :— The table has been prepared using 23°0' as Ayanamsa.

At latitude 66°N33', any point from 8s 7°0' to 2s 7°0' is the Ascendant when the sidereal time is 18*h*.

For latitudes higher than 66°N33', the Ascendant suddenly changes by 6 signs at certain points and then decreases for some time and again changes by 6 signs and begins to increase. Certain portions of the ecliptic near 2s 7°0' and 8s 7°0' never become Lagna at such latitudes.

Sidereal Time for the Beginning of Lagnas
For Ayanamsas 23° and 24°
(Ayanamsa is 23° in 1938 and 24° in 2010 A.D.)

Lagna		Equator 0° N 0'			Madras 13° N 4'			Bombay 18° N 58'			Calcutta 22° N 35'			Varanasi 25° N 19'			Delhi 28° N 39'		
	°	h	m	s	h	m	s	h	m	s	h	m	s	h	m	s	h	m	s
Mesha	(23)	19	25	07	19	16	45	19	12	43	19	10	06	19	08	01	19	05	23
	(24)		28	53		20	10		15	58		13	15		11	04		8	20
Vrisha	(23)	21	22	24	21	04	38	20	55	57	20	50	21	20	45	51	20	40	12
	(24)		26	30		08	24		59	40		53	59		49	26		43	42
Mithuna	(23)	23	29	31	23	06	37	22	55	32	22	48	19	22	42	31	22	35	11
	(24)		33	52		11	0		59	49		52	36		46	46		39	26
Karkata	(23)	1	39	19	1	18	24	1	08	13	1	01	38	0	56	20	0	49	38
	(24)		43	33		22	47		12	44		06	12	1	0	57		54	20
Simha	(23)	3	41	17	3	28	09	3	21	50	3	17	44	3	14	26	3	10	18
	(24)		45	15		32	27		26	17		22	16		19	05		15	03
Kanya	(23)	5	34	18	5	31	43	5	30	29	5	29	40	5	29	02	5	28	13
	(24)		37	58		35	45		34	41		34	0		33	27		32	45
Tula	(23)	7	25	07	7	33	29	7	37	31	7	40	08	7	42	13	7	44	51
	(24)		28	53		37	36		41	48		44	31		46	42		49	26
Vrischika	(23)	9	22	24	9	40	10	9	48	51	9	54	27	9	58	57	10	04	36
	(24)		26	30		44	36		53	20		59	01	10	03	34		09	18
Dhanus	(23)	11	29	31	11	52	25	12	03	30	12	10	42	12	16	31	12	23	51
	(24)		33	52		56	44		07	55		15	08		20	58		28	18
Makara	(23)	13	39	19	14	00	14	14	10	25	14	17	0	14	22	18	14	29	0
	(24)		43	33		04	19		14	22		20	54		26	09		32	46
Kumbha	(23)	15	41	17	15	54	25	16	00	44	16	04	50	16	08	08	16	12	16
	(24)		45	15		58	03		04	13		08	14		11	25		15	27
Mina	(23)	17	34	18	17	36	53	17	38	07	17	38	56	17	39	34	17	40	23
	(24)		37	58		40	11		41	15		41	56		42	29		43	11

N.B. — By adding 6 hrs. to the above Sid. time for the Equator we get the S.T. for the beginning of the 10th House for all places.

Duration of Lagnas in Sidereal Time Interval

Lagna		Equator			Madras			Bombay			Calcutta			Varanasi			Delhi		
	°	h	m	s	h	m	s	h	m	s	h	m	s	h	m	s	h	m	s
Mesha	(23)	1	57	17	1	47	53	1	43	14	1	40	15	1	37	50	1	34	49
	(24)		57	37		48	14		43	42		40	44		38	22		35	22
Vrisha	(23)	2	7	7	2	1	59	1	59	35	1	57	58	1	56	40	1	54	59
	(24)		7	22		2	36	2	0	9		58	37		57	20		55	44
Mithuna	(23)	2	9	48	2	11	47	2	12	41	2	13	19	2	13	49	2	14	27
	(24)		9	41		11	47		12	55		13	36		14	11		14	54
Karkata	(23)	2	1	58	2	9	45	2	13	37	2	16	6	2	18	6	2	20	40
	(24)		1	42		9	40		13	33		16	4		18	8		20	48
Simha	(23)	1	53	1	2	3	34	2	8	39	2	11	56	2	14	36	2	17	55
	(24)		52	43		3	18		8	24		11	44		14	22		17	42
Kanya	(23)	1	50	49	2	1	46	2	7	2	2	10	28	2	13	11	2	16	38
	(24)		50	55		1	51		7	7		10	31		13	15		16	41
Tula	(23)	1	57	17	2	6	41	2	11	20	2	14	19	2	16	44	2	19	45
	(24)		57	37		7	0		11	32		14	30		16	52		19	52
Vrischika	(23)	2	7	7	2	12	15	2	14	39	2	16	15	2	17	34	2	19	15
	(24)		7	22		12	8		14	35		16	7		17	24		19	0
Dhanus	(23)	2	9	48	2	7	49	2	6	55	2	6	18	2	5	47	2	5	9
	(24)		9	41		7	35		6	27		5	46		5	11		4	28
Makara	(23)	2	1	58	1	54	11	1	50	19	1	47	50	1	45	50	1	43	16
	(24)		1	42		53	44		49	51		47	20		45	16		42	41
Kumbha	(23)	1	53	1	1	42	28	1	37	23	1	34	6	1	31	26	1	28	7
	(24)		52	43		42	8		37	2		33	42		31	4		27	44
Mina	(23)	1	50	49	1	39	52	1	34	36	1	31	10	1	28	27	1	25	0
	(24)		50	55		39	59		34	43		31	19		28	35		25	9

N.B.— To obtain the durations in mean time intervals *reduce* the above by 10 secs. for every 60.9 min. and by 1 sec. for every 6.1 min. of time interval

PRINCIPAL CITIES

Cities in India, Sri Lanka, Nepal and Bhutan using the same standard time

The local mean time (L. M. T.) is required in determining the sidereal time of a moment which is utilised in finding the Ascendant *(Lagna)* and the Tenth house *(Dasama)*. The following table gives the latitude and longitude of principal cities along with the Local Time Correction, viz., the reduction of Indian sandard time to get the corresponding local mean time of the place.

The last set of corrections when applied to the sidereal time as obtained from pages 2 to 4 of this book or from the annual 'Indian Ephemeris' would give the sidereal time for 12*h* noon L.M.T. of the place in question. When the Greenwich time for any day is available, the corrections are to be diminished by 54 secs. before applying the same to the Greenwich sidereal time.

PLACE			Latitude North		Longitude East		Local Time Correction L.M.T. from I.S.T.		Corr. to Indian Sid. Time	
			°	′	°	′	*m*	*s*	*m*	*s*
Adilabad	...	A.P.	19	37	78	30	−16	00	+0	03
Adoni	...	A.P.	15	38	77	19	−20	44	+0	03
Agartala	...	Tripura	23	49	91	17	+35	08	−0	06
Agra	...	U.P.	27	11	78	02	−17	52	+0	03
Ahmedabad	...	Gujarat	23	02	72	36	−39	36	+0	07
Ahmednagar	...	Maharastra	19	05	74	48	−30	48	+0	05
Aijal	...	Mizoram	23	44	92	45	+41	00	−0	07
Ajanta	...	Maharastra	20	33	75	48	−26	48	+0	04
Akola	...	Maharastra	20	42	77	02	−21	52	+0	04
Ajmer	...	Rajasthan	26	27	74	38	−31	28	+0	05
Aligarh	...	U.P.	27	54	78	04	−17	44	+0	03
Alipurduar	...	W.B.	26	28	89	32	+28	08	−0	05
Allahabad	...	U.P.	25	28	81	52	−2	32	+0	00
Alleppey	...	Kerala	9	30	76	23	−24	28	+0	04
Almora	...	U.P.	29	36	79	40	−11	20	+0	02
Alwar	...	Rajasthan	27	34	76	38	−23	28	+0	04
Amaravati	...	Maha.	20	56	77	45	−19	00	+0	03
Ambala	...	Haryana	30	23	76	46	−22	56	+0	04
Ambikapur	...	M.P.	23	07	83	11	+2	44	−0	00
Amingaon	...	Assam	26	12	91	42	+36	48	−0	06
Amreli	...	Gujarat	21	36	71	15	−45	00	+0	07
Amritsar	...	Punjab	31	38	74	53	−30	28	+0	05
Anamalai	...	Tamil N.	10	38	76	50	−22	40	+0	04
Anand	...	Gujarat	22	32	73	00	−38	00	+0	06
Anantapur	...	A.P.	14	41	77	37	−19	32	+0	03
Angul	...	Orissa	20	48	85	01	+10	04	−0	02
Anuradhapur	...	Sri Lanka	8	21	80	23	−8	28	+0	01
Arcot	...	Tamil N.	12	56	79	24	−12	24	+0	02
Arrah	...	Bihar	25	33	84	40	+8	40	−0	01
Arvi	...	Maharastra	20	59	78	14	−17	04	+0	03
Asansol	...	W.B.	23	42	86	58	+17	52	−0	03
Aurangabad	...	Maharastra	19	52	75	18	−28	48	+0	05
Ayodhya	...	U.P.	26	48	82	14	−1	04	+0	00

Place	Latitude North	Longitude East	Local Time Correction L.M.T. from I.S.T.	Corr. to Indian Sid. Time
	° ′	° ′	*m* *s*	*m* *s*
Azamgarh ... U.P.	26 03	83 13	+2 52	–0 00
Baidyanath Dham (Deoghar) Bihar	24 29	86 43	+16 52	–0 03
Badrinath ... U.P.	30 44	79 32	–11 52	+0 02
Balasore ... Orissa	21 30	86 55	+17 40	–0 03
Ballia ... U.P.	25 44	84 11	+6 44	–0 01
Balurghat ... W.B.	25 14	88 47	+25 08	–0 04
Banda ... U.P.	25 20	80 22	–8 32	+0 01
Bangalore ... Karnataka	12 58	77 36	–19 36	+0 02
Bankura ... W.B.	23 14	87 04	+18 16	–0 03
Bapatla ... A.P.	15 54	80 30	–8 00	+0 01
Barasat ... W.B.	22 43	88 29	+23 56	–0 04
Bara Banki ... U.P.	26 56	81 13	–5 08	+0 01
Barauni ... Bihar	25 29	85 59	+13 56	–0 02
Bareilly ... U.P.	28 21	79 23	–12 28	–0 02
Baripada ... Orissa	21 56	86 44	+16 56	–0 03
Baroda ... Gujarat	22 18	73 13	–37 08	+0 06
Barpeta ... Assam	26 20	91 02	+34 08	–0 06
Barrackpur ... W.B.	22 46	88 24	+23 36	–0 04
Batanagar ... W.B.	22 31	88 15	+23 00	–0 04
Belgaum ... Karnataka	15 52	74 32	–31 52	+0 05
Bellary ... Karnataka	15 10	76 56	–22 16	+0 04
Berhampur ... Orissa	19 18	84 51	+9 24	–0 02
Bhadrak ... Orissa	21 08	86 33	+16 12	–0 03
Bhadravati ... Karnataka	13 52	75 40	–27 20	+0 04
Bhagalpur ... Bihar	25 15	86 58	+17 52	–0 03
Bharatpur ... Rajasthan	27 13	77 29	–20 04	+0 03
Bhatinda ... Panjab	30 12	74 56	–30 16	+0 05
Bhatpara ... W.B.	22 56	88 26	+23 44	–0 04
Bhavnagar ... Gujarat	21 46	72 11	–41 16	+0 07
Bhilainagar ... M.P.	21 11	81 20	–4 40	+0 01
Bhopal ... M.P.	23 16	77 25	–20 20	+0 03
Bhubaneswar ... Orissa	20 15	85 50	+13 20	–0 02
Bhuj ... Gujarat	23 16	69 48	–50 48	+0 08
Bhusawal ... Maharastra	21 02	75 47	–26 52	+0 04
Bijapur ... Karnataka	16 51	75 44	–27 04	+0 04
Bijnor ... U.P.	29 23	78 11	–17 16	+0 03
Bikaner ... Rajasthan	28 01	73 19	–36 44	+0 06
Bilasipara ... Assam	26 13	90 13	+30 52	–0 05
Bilaspur ... M.P.	22 05	82 13	–1 08	+0 00
Bilaspur ... H.P.	31 20	76 45	–23 00	+0 04
Bilimore ... Gujarat	20 46	72 58	–38 08	+0 06
Biratnagar ... Nepal	26 35	87 20	+19 20	–0 03
Bishnupur ... W.B.	23 05	87 18	+19 12	–0 03
Bolpur ... W.B.	23 40	87 42	+20 48	–0 03
Bolangir ... Orissa	20 40	83 30	+ 4 00	–0 01
Bombay ... Maharastra	18 58	72 50	–38 40	+0 06
Brindaban ... U.P.	27 33	77 44	–19 04	+0 03
Broach ... Gujarat	21 41	73 01	–37 56	+0 06
Bulandshahr ... U.P.	28 24	77 54	–18 24	+0 03
Bulsar ... Gujarat	20 36	72 59	–38 04	+0 06
Burdwan ... W.B.	23 15	87 54	+21 36	–0 04
Burnpur ... W.B.	23 39	86 56	+17 44	–0 03
Buxar ... Bihar	25 34	84 01	+6 04	–0 01
Calcutta ... W.B.	22 35	88 23	+23 30	–0 04
		5h 53m 30s		

Place	Latitude North	Longitude East	Local Time Correction L.M.T. from I.S.T.	Corr. to Indian Sid. Time
	° ′	° ′	m s	m s
Calicut (Kozhikode) Kerala	11 15	75 49	−26 44	+0 04
Cannanore ... Kerala	11 52	75 25	−28 20	+0 05
Cape Comorin ... Tamil N.	8 04	77 34	−19 44	+0 03
Chaibasa ... Bihar	22 33	85 51	+13 24	−0 02
Chandausi – U.P.	28 27	78 49	−14 44	+0 02
Chandannagar ... W.B.	22 52	88 22	+23 28	−0 04
Chandigarh ... Punjab	30 44	76 53	−22 28	+0 03
Chapra ... Bihar	25 47	84 43	+8 52	−0 01
Chhindwara ... M.P.	22 03	78 59	−14 04	+0 02
Chidambaram ... Tamil N.	11 24	79 44	−11 04	+0 02
Chingleput ... Tamil N.	12 42	80 01	−9 56	+0 02
Chinsura ... W.B.	22 54	88 21	+23 24	−0 04
Chirala ... A.P.	15 50	80 22	−8 32	+0 01
Chittaranjan ... W.B.	23 50	86 50	+17 20	−0 03
Chittoor ... A.P.	13 14	79 04	−13 44	+0 02
Chunar ... U.P.	25 08	82 56	+1 44	−0 00
Churu ... Rajasthan	28 18	74 58	−30 08	+0 05
Cochin ... Kerala	9 58	76 15	−25 00	+0 04
Coimbatore ... Tamil N.	11 00	76 56	−22 16	+0 04
Colombo ... Sri Lanka	6 54	79 52	−10 32	+0 02
Contai ... W.B.	21 50	87 48	+21 12	−0 03
Cooch Bihar ... W.B.	26 19	89 28	+27 52	−0 05
Coonoor ... Tamil N.	11 21	76 49	−22 44	+0 04
Cuddalore ... Tamil N.	11 43	79 49	−10 44	+0 02
Cuddapah ... A.P.	14 28	78 50	−14 40	+0 02
Cuttack ... Orissa	20 29	85 52	+13 28	−0 02
Daltanganj ... Bihar	24 02	84 04	+6 16	−0 01
Daman ... Gujarat	20 25	72 53	−38 28	+0 06
Damoh ... M.P.	23 50	79 29	−12 04	+0 02
Danapur .... Bihar	25 38	85 05	+10 20	−0 03
Darbhanga ... Bihar	26 10	85 54	+13 36	−0 02
Darjeeling ... W.B.	27 03	88 16	+23 04	−0 04
Davangere ... Karnataka	14 31	75 58	−26 08	+0 04
Dehra Dun ... U.P.	30 19	78 03	−17 48	+0 03
Dehri ... Bihar	24 53	84 14	+6 56	−0 01
Delhi ... —	28 39	77 13	−21 08	+0 03
Dewas ... M.P.	22 58	76 06	−25 36	+0 04
Dhanbad ... Bihar	23 48	86 27	+15 48	−0 03
Dhanuskodi ... Tamil N.	9 12	79 23	−12 28	+0 02
Dharampuri ... Tamil N.	12 08	78 13	−17 08	+0 03
Dharwar ... Karnataka	15 28	75 01	−29 56	+0 05
Dhenkanal ... Orissa	20 40	85 38	+12 32	−0 02
Dholpur ... Rajasthan	26 42	77 56	−18 16	+0 03
Dhubri ... Assam	26 02	89 59	+29 56	−0 05
Dhulia ... Maha.	20 58	74 47	−30 52	+0 05
Diamond-Harbour W.B.	22 12	88 13	+22 52	−0 04
Dibrugarh ... Assam	27 29	94 55	+49 40	−0 08
Digboi ... Assam	27 33	95 40	+52 40	−0 09
Digha ... W.B.	21 40	87 40	+20 40	−0 03
Diu ... Gujarat	20 42	71 01	−45 56	+0 08
Dimapur ... Nagaland	25 51	93 48	+45 12	−0 07
Durg ... M.P.	21 11	81 21	−4 36	+0 01
Durgapur ... W.B.	23 30	87 20	+19 20	−0 03
Dwarka ... Gujarat	22 14	68 58	−54 08	+0 09
Ellora ... Maharastra	20 02	75 13	−29 08	+0 05

PLACE			Latitude North		Longitude East		Local Time Correction L.M.T. from I.S.T.		Corr. to Indian Sid. Time	
			°	′	°	′	m	s	m	s
Eluru	...	Andhra	16	43	81	09	−5	24	+0	01
Ernakulam	...	Kerala	9	59	76	18	−24	48	+0	04
Erode	...	Tamil N.	11	20	77	46	−18	56	+0	03
Etawah	...	U.P.	26	47	79	02	−13	52	+0	02
Faizabad	...	U.P.	26	48	82	08	−1	28	+0	00
Farakka	...	W.B.	24	48	87	56	+21	44	−0	04
Faridabad	...	Haryana	28	25	77	22	−20	32	+0	03
Faridkote	...	Punjab	30	40	74	57	−30	12	+0	05
Fatehgarh	...	U.P.	27	23	79	35	−11	40	+0	02
Fatehpur	...	U.P.	25	55	80	47	−6	52	+0	01
Ferozabad	...	U.P.	27	09	78	24	−16	24	+0	03
Ferozepur	...	Punjab	30	55	74	40	−31	20	+0	05
Galle	...	Sri Lanka	6	01	80	15	−9	00	+0	01
Gandhinagar	...	Gujarat	23	15	72	45	−39	00	+0	06
Gangtok	...	Sikkim	27	20	88	36	+24	24	−0	04
Guwahati	...	Assam	26	10	91	45	+37	00	−0	06
Gaya	...	Bihar	24	48	85	01	+10	04	−0	02
Gaud	...	W.B.	24	54	88	07	+22	28	−0	04
Ghatal	...	W.B.	22	40	87	44	+20	56	−0	03
Ghatsila	...	Bihar	22	35	86	28	+15	52	−0	03
Ghaziabad	...	U.P.	28	40	77	28	−20	08	+0	03
Ghazipur	...	U.P.	25	36	83	36	+4	24	−0	01
Gilgit	...	Kashmir	35	55	74	20	−32	40	+0	05
Gridih	...	Bihar	24	10	86	19	+15	16	−0	03
Goalpara	...	Assam	26	10	90	36	+32	24	−0	05
Gonda	...	U.P.	27	09	81	57	−2	12	+0	00
Gopalpur	...	Orissa	19	16	84	57	+9	48	−0	02
Gorakhpur	...	U.P.	26	45	83	22	+3	28	−0	01
Gudivada	...	Andhra	16	25	81	00	−6	00	+0	01
Gudur	...	Andhra	14	09	79	54	−10	24	+0	02
Guntur	...	Andhra	16	19	80	26	−8	16	+0	01
Gurdaspur	...	Punjab	32	03	75	27	−28	12	+0	05
Gurgaon	...	Haryana	28	37	77	04	−21	44	+0	04
Gwalior	...	M.P.	26	14	78	10	−17	20	+0	03
Habra	...	W.B.	22	50	88	38	+24	32	−0	04
Haldia	...	W.B.	22	02	88	05	+22	20	−0	04
Hanamkonda	...	Andhra	18	03	79	32	−11	52	+0	02
Hapur	...	U.P.	28	43	77	55	−18	20	+0	03
Hardoi	...	U.P.	27	20	80	10	−9	20	+0	02
Haridwar	...	U.P.	29	56	78	08	−17	28	+0	03
Hassan	...	Kama	18	10	79	46	−10	56	+0	02
Hathras	...	U.P.	27	36	78	06	−17	36	+0	03
Hazaribagh	...	Bihar	23	59	85	22	+11	28	−0	02
Hindupur	...	Andhra	13	49	77	32	−19	52	+0	03
Hirakud	...	Orissa	21	30	84	00	+6	00	−0	01
Hissar	...	Haryana	29	10	75	44	−27	04	+0	04
Hoshiarpur	...	Punjab	31	32	75	57	−26	12	+0	04
Hospet	...	Kama	15	16	76	26	−24	24	+0	04
Howrah	...	W.B.	22	36	88	19	+23	16	−0	04
Hubli	...	Kama.	15	20	75	12	−29	12	+0	05
Hyderabed	...	Andhra	17	26	78	27	−16	12	+0	03
Imphal	...	Manipur	24	48	93	57	+45	48	−0	07
Indore	...	M.P.	22	43	75	51	−26	36	+0	04
Itarsi	...	M.P.	22	36	77	43	−18	48	+0	03

PLACE			Latitude North		Longitude East		Local Time Correction L.M.T. from I.S.T.		Corr. to Indian Sid. Time	
			°	′	°	′	m	s	m	s
Jabalpur	...	M.P.	23	09	79	57	-10	12	+0	02
Jaffna	...	Sri Lanka	9	40	80	00	-10	00	+0	02
Jagadalpur	...	M.P.	19	05	82	04	-1	44	+0	00
Jaipur	...	Rajasthan	26	55	75	49	-26	44	+0	04
Jaisalmir	...	Rajasthan	26	55	70	57	-46	12	+0	08
Jalgaon	...	Maha.	21	03	75	40	-27	20	+0	04
Jalpaiguri	...	W.B.	26	32	88	44	+24	56	+0	04
Jamalpur	...	Bihar	25	19	86	32	+16	08	+0	03
Jammu	...	Kashmir	32	43	74	52	-30	32	+0	05
Jamnagar	...	Gujarat	22	27	70	07	-49	32	+0	08
Jamshedpur	...	Bihar	22	48	86	11	+14	44	+0	02
Jangipur	...	W.B.	24	28	88	05	+22	20	+0	04
Jaunpur	...	U.P.	25	46	82	42	+0	48	+0	03
Jhansi	...	M.P.	25	27	78	33	-15	48	+0	01
Jharia	...	Bihar	23	00	80	33	-7	48	+0	07
Jodhpur	...	Rajasthan	26	18	73	02	-37	52	+0	01
Jorhat	...	Assam	26	46	94	13	+46	52	+0	05
Jullundur	...	Punjab	31	20	75	34	-27	44	+0	02
Junagadh	...	Gujarat	21	33	70	27	-48	12	+0	03
Kailasahar	...	Tripura	24	22	92	00	+38	00	+0	02
Kakinada	...	A.P.	16	57	82	13	-1	08	+0	04
Kalahasti	...	A.P.	13	45	79	44	-11	04	+0	02
Kalimpong	...	W.B.	26	05	88	26	+23	44	+0	04
Kalyan	...	Maharastra	19	14	73	10	-37	20	+0	06
Kalyani	...	W.B.	23	00	88	28	+23	52	+0	04
Kanauj	...	U.P.	27	02	79	55	-10	20	+0	02
Kanchipuram	...	Tamil N.	12	50	79	42	-11	12	+0	02
Kandi	...	Sri Lanka	7	18	80	38	-7	28	+0	01
Kandla	...	Gujarat	21	21	71	17	-44	52	+0	07
Kanpur	...	U.P.	26	29	80	21	-8	36	+0	01
Karad	...	Maharastra	17	15	74	12	-33	12	+0	05
Karikal	...	Pondicherry	10	56	79	51	-10	36	+0	02
Karwar	...	Karnataka	14	48	74	11	-33	16	+0	05
Katihar	...	Bihar	25	34	87	34	+20	16	+0	03
Kathmandu	...	Nepal	27	42	85	12	+10	48	+0	02
Katni	...	M.P.	23	47	80	27	-8	12	+0	01
Katras	...	Bihar	23	49	86	17	+15	08	+0	02
Khammam	...	A.P.	17	14	80	06	-9	36	+0	02
Khandwa	...	M.P.	21	50	76	20	-24	40	+0	04
Kharagpur	...	W.B.	22	20	87	20	+19	20	+0	03
Khurda	...	Orissa	20	11	85	38	+12	32	+0	02
Kirkee	...	Maharastra	18	33	73	54	-34	24	+0	06
Kishanganj	...	Bihar	26	10	87	02	+18	08	+0	03
Kodaikanal	...	Tamil N.	10	14	77	28	-20	08	+0	03
Kohima	...	Nagaland	25	41	94	07	+46	28	+0	08
Kolar	...	Karnataka	13	09	78	11	-17	16	+0	04
Kolhapur	...	Maharastra	16	42	74	14	-33	04	+0	04
Kollegal	...	Karnataka	12	09	77	09	-21	24	+0	04
Koraput	...	Orissa	18	50	82	40	+0	40	+0	04
Kota	...	Rajasthan	25	10	75	52	-26	32	+0	04
Kottayam	...	Kerala	9	36	76	32	-23	52	+0	04
Krishnagar	...	W.B.	23	23	88	30	+24	00	+0	04
Kumbakonam	...	Tamil N.	10	58	79	25	-12	20	+0	02
Kurnool	...	A.P.	15	50	78	03	-17	48	+0	03
Lucknow	...	U.P.	26	51	80	56	-6	16	+0	01

PLACE			Latitude North		Longitude East		Local Time Correction L.M.T. from I.S.T.		Corr. to Indian Sid. Time	
			°	′	°	′	m	s	m	s
Ludhiana	...	Punjab	30	55	75	52	−26	32	+0	04
Lumding	...	Assam	25	46	93	10	+42	40	−0	07
Machilipatnam	...	Andhra	16	11	81	07	−5	32	+0	01
Madhupur	...	Bihar	24	18	86	37	+16	28	−0	03
Madras	...	Tamil N.	13	04	80	15	−9	00	+0	01
Madurai	...	Tamil N.	9	58	78	10	−17	20	+0	03
Mahabalipuram	...	Tamil N.	12	37	80	14	−9	04	+0	01
Mahbubnagar	...	Andhra	16	42	77	58	−18	08	+0	03
Mahe	...	Kerala	11	43	75	33	−27	48	+0	05
Maihar	...	M.P.	24	16	80	49	−6	44	+0	01
Mainpuri	...	U.P.	27	14	79	03	−13	48	+0	02
Malda	...	W.B.	25	05	88	09	+22	36	−0	04
Mangalore	...	Karnataka	12	52	74	50	−30	40	+0	05
Marwar	...	Rajasthan	25	43	73	45	−35	00	+0	06
Mathura	...	U.P.	27	28	77	42	−19	12	+0	02
Meerut	...	U.P.	29	01	77	45	−19	00	+0	03
Mercara	...	Karnataka	12	26	75	47	−26	52	+0	04
Mettur	...	Tamil N.	11	47	77	48	−18	48	+0	03
Mhow	...	M.P.	22	34	75	47	−26	52	+0	04
Midnapore	...	W.B.	22	26	87	19	+19	16	−0	03
Miraj	...	Maha.	16	49	74	43	−31	08	+0	05
Mirpur	...	Kashmir	33	12	73	49	−34	44	+0	06
Mirzapur	...	U.P.	25	09	82	33	+0	12	−0	00
Monghyr	...	Bihar	25	22	86	27	+15	48	−0	03
Moradabad	...	U.P.	28	51	78	47	−14	52	+0	02
Morvi	...	Gujarat	22	49	70	49	−46	44	+0	08
Motihari	...	Bihar	26	38	84	54	+9	36	−0	02
Mughal Sarai	...	U.P.	25	17	83	08	+2	32	−0	00
Murshidabad	...	W.B.	24	12	88	18	+23	12	−0	04
Mussoorie	...	U.P.	30	27	78	06	−17	36	+0	03
Muzaffarnagar	...	U.P.	29	28	77	44	−19	04	+0	03
Muzaffarpur	...	Bihar	26	07	85	22	+11	28	−0	02
Mysore	...	Karnataka	12	18	76	39	−23	24	+0	04
Nabadwip	...	W.B.	23	24	88	24	+23	36	−0	04
Nabha	...	Punjab	30	25	76	09	−25	24	+0	04
Nagercoil	...	Tamil N.	8	11	77	29	−20	04	+0	03
Nagpur	...	Maha.	21	09	79	05	−13	40	+0	02
Nahan	...	H.P.	30	33	77	21	−20	36	+0	03
Naihati	...	W.B.	22	57	88	28	+23	52	−0	04
Nainital	...	U.P.	29	22	79	27	−12	12	+0	02
Nanded	...	Maha.	19	09	77	27	−20	12	+0	03
Nangal	...	Punjab	31	23	76	23	−24	28	+0	04
Nasik	...	Maha.	20	02	73	50	−34	40	+0	06
Nawabganj	...	U.P.	26	56	82	12	−1	12	+0	00
Neemuch	...	M.P.	24	27	74	52	−30	32	+0	05
Nellore	...	Andhra	14	27	80	00	−10	00	+0	02
Nizamabad	...	Andhra	18	40	78	06	−17	36	+0	03
Nowgong	...	Assam	26	21	92	42	+40	48	−0	07
Ongole	...	Andhra	15	30	80	06	−9	36	+0	02
Ootacamund	...	Tamil N.	11	24	76	44	−23	04	+0	04
Osmanabad	...	Maha.	18	12	76	03	−25	48	+0	04
Palghat	...	Kerala	10	46	76	40	−23	20	+0	04
Panaji	...	Goa	15	29	73	49	−34	44	+0	06
Panipat	...	Hary	29	23	77	01	−21	56	+0	04

PLACE			Latitude North		Longitude East		Local Time Correction L.M.T. from I.S.T.		Corr. to Indian Sid. Time	
			°	'	°	'	m	s	m	s
Pasighat	...	Arunach.	28	05	95	20	+51	20	−0	09
Pathankot	...	Punjab	32	17	75	40	−27	20	+0	04
Patiala	...	Punjab	30	19	76	24	−24	24	+0	04
Patna	...	Bihar	25	36	85	08	+10	32	−0	02
Pilibhit	...	U.P.	28	38	79	51	−10	36	+0	02
Pollachi	...	Tamil N.	10	39	77	03	−21	48	+0	04
Pondicherry	...		11	56	79	50	−10	40	+0	02
Poona	...	Maha.	18	31	73	53	−34	28	+0	06
Porbander	...	Gujarat	21	38	69	37	−51	32	+0	08
Port Blair	...	Andaman	11	40	92	46	+41	04	−0	07
Pudukkottai	...	Tamil N.	10	23	78	52	−14	32	+0	02
Puri	...	Orissa	19	48	85	50	+13	20	−0	02
Punakha	...	Bhutan	27	36	89	50	+29	20	−0	05
Purnea	...	Bihar	25	47	87	31	+20	04	−0	13
Purulia	...	W.B.	23	20	86	23	+15	32	−0	03
Quilon	...	Kerala	8	54	76	38	−23	28	+0	04
Rae Bareli	...	U.P.	26	14	81	13	−5	08	+0	01
Raichur	...	Karnataka	16	12	77	21	−20	36	+0	03
Raiganj	...	W.B.	25	36	88	08	+22	32	−0	04
Raigarh	...	M.P.	21	54	83	26	+3	44	−0	01
Raipur	...	M.P.	21	15	81	37	−3	32	+0	01
Rajahmudry	...	Andhra	17	00	81	46	−2	56	+0	00
Rajkot	...	Gujarat	22	18	70	48	−46	48	+0	08
Rajmahal	...	Bihar	25	03	87	53	+21	32	−0	04
Rameswaram	...	Tamil N.	9	18	79	18	−12	8	+0	02
Ramanathapuram		Tamil N.	9	22	78	51	−14	36	+0	02
Rampur	...	H.P.	31	26	77	38	−19	28	+0	03
Rampur	...	U.P.	28	46	79	02	−13	52	+0	02
Ranaghat	...	W.B.	23	11	88	37	+24	28	−0	04
Ranchi	...	Bihar	23	22	85	21	+11	24	−0	02
Rangiya	...	Assam	26	30	91	35	+36	20	−0	06
Raniganj	...	W.B.	23	35	87	07	+18	28	−0	03
Ranikhet	...	U.P.	29	38	79	28	−12	08	+0	02
Ratangarh	...	Rajasthan	28	05	74	39	−31	24	+0	05
Ratlam	...	M.P.	23	31	75	07	−29	32	+0	05
Ratnagiri	...	Maha.	17	08	73	19	−36	44	−0	06
Raxaul	...	Bihar	26	58	84	51	+9	24	−0	02
Rewa	...	M.P.	24	33	81	17	−4	52	+0	01
Rohtak	...	Haryana	28	54	76	34	−23	44	+0	04
Roorkee	...	U.P.	29	52	77	53	−18	28	+0	03
Rourkela	...	Orissa	22	25	84	52	+9	28	−0	02
Sadiya	...	Arunachal	27	48	94	38	+48	32	−0	08
Sagar	...	M.P.	23	50	78	50	−14	40	+0	02
Sagar	...	Karnataka	16	37	76	51	−22	36	+0	04
Saharanpur	...	U.P.	29	58	77	32	−19	52	+0	03
Salem	...	Tamil N.	11	40	78	10	−17	20	+0	03
Samastipur	...	Bihar	25	55	85	50	+13	20	−0	02
Sambalpur	...	Orissa	21	27	83	58	+5	52	−0	01
Sangli	...	Maha.	16	52	74	36	−31	36	+0	05
Santiniketan (Bolpur)	...	W.B.	23	39	87	43	+20	52	−0	03
Santipur	...	W.B.	23	15	88	29	+23	56	−0	04
Sasaram	...	Bihar	24	57	84	03	+6	12	−0	01
Satara	...	Maha.	17	42	74	00	−34	00	+0	06
Satna	...	M.P.	24	34	80	55	−6	20	+0	01
Secunderabad	...	Andhra	17	27	78	33	−15	48	+0	03

Place			Latitude North		Longitude East		Local Time Correction L.M.T. from I.S.T.		Corr. to Indian Sid. Time	
			°	′	°	′	m	s	m	s
Seoni	...	M.P.	22	06	79	35	-11	40	+0	02
Serampur	...	W.B.	22	45	88	23	+23	32	-0	04
Shahabad	...	U.P.	27	30	80	05	-9	40	+0	02
Shahdol	...	M.P.	23	00	81	30	-4	00	+0	00
Shamli	...	U.P.	29	27	77	19	-20	44	+0	03
Shikohabad	...	U.P.	27	07	78	35	-15	40	+0	03
Shillong	...	Meghal.	25	35	91	53	+37	32	-0	05
Shimoga	...	Karnataka	13	56	75	38	-27	28	+0	06
Shivpuri	...	M.P.	25	40	77	44	-19	04	+0	03
Sholapur	...	Maha.	17	39	75	55	-26	20	+0	04
Sibsagar	...	Assam	27	00	94	37	+48	28	-0	08
Silchar	...	Assam	24	50	92	47	+41	08	-0	07
Siliguri	...	W.B.	26	44	88	26	+23	44	-0	04
Simla	...	H.P.	31	06	77	10	-21	20	+0	03
Sindri	...	Bihar	23	39	86	31	+16	04	-0	03
Sitamari	...	Bihar	26	35	85	32	+12	08	-0	02
Srikakulam	...	Andhra	18	18	83	56	+5	44	-0	01
Srinagar	...	Kashmir	34	06	74	48	-30	48	+0	05
Srirangam	...	Tamil N.	10	52	78	44	-15	04	+0	02
Sultanpur	...	U.P.	26	16	82	07	-1	32	+0	00
Sundargarh	...	Orissa	22	06	84	00	+6	00	-0	01
Surat	...	Gujarat	21	10	72	51	-38	36	+0	06
Surendranagar	...	Gujarat	22	43	71	33	-43	48	+0	07
Puri	...	W.B.	23	54	87	34	+20	16	-0	03
Tamluk	...	W.B.	22	18	87	54	+21	36	-0	04
Tangla	...	Assam	26	40	91	54	+37	36	-0	06
Tarakeswar	...	W.B.	22	54	88	02	+22	08	-0	04
Tenali	...	Andhra	16	14	80	38	-7	28	+0	01
Tezpur	...	Assam	26	37	92	47	+41	08	-0	07
Thanjavur	...	Tamil N.	10	47	79	08	-13	28	+0	02
Thimphu	...	Bhutan	27	32	89	53	+29	32	-0	05
Tinsukia	...	Assam	27	28	95	20	+51	20	-0	08
Tiruchirapalli	...	Tamil N.	10	50	78	42	-15	12	+0	02
Tirunelveli	...	Tamil N.	8	44	77	41	-19	16	+0	03
Tirupati	...	Andhra	13	40	79	20	-12	40	+0	02
Trichur	...	Kerala	10	30	76	15	-25	00	+0	04
Trincomalee	...	Sri Lanka	8	34	81	15	-5	00	+0	01
Trivandrum	...	Kerala	8	31	77	00	-22	00	+0	04
Tuticorin	...	Tamil N.	8	49	78	09	-17	24	+0	03
Udaipur	...	Rajasthan	24	35	73	44	-35	04	+0	06
Udupi	...	Karnataka	13	20	74	45	-31	00	+0	05
Ujjain	...	M.P.	23	11	75	46	-26	56	+0	04
Varanasi	...	U.P.	25	19	83	01	+2	04	-0	00
Vellore	...	Tamil N.	12	55	79	11	-13	16	+0	02
Veraval	...	Gujarat	20	53	70	26	-48	16	+0	08
Vidisha	...	M.P.	23	32	77	51	-18	36	+0	03
Vijayawada	...	Andhra	16	32	80	36	-7	36	+0	01
Visakhapatnam	...	Andhra	17	43	83	19	+3	16	-0	01
Vizianagram	...	Andhra	18	07	83	26	+3	44	-0	01
Waltair	...	Andhra	17	47	83	12	+2	48	-0	00
Warangal	...	Andhra	17	58	79	40	-11	20	+0	02
Wardha	...	Maha.	20	44	78	37	-15	32	+0	03
Yeotmal	...	Maha.	20	25	78	08	-17	28	+0	03

NOTE :— The longitude of place also represents the difference of local time from G.M.T. converted at the rate of 4 mins. per degree and 4 secs. per minute of longitude (*i.e.* 1 hour for 15 degrees) The time of a place in the east is in advance of (*viz.* more than) that in the west. The Standard Time of India (I.S.T) is *5h* 30*m* ahead of G.M.T.

Cities in Bangladesh and Pakistan

The corrections to get the local time (L.M.T.) for cities in Bangladesh and Pakistan are given with reference to the Zonal Standard Time (6^h ahead of G.M.T. for Bangladesh and 5^h for Pakistan) and also with reference to the Indian Standard Time ($5^1/_2{}^h$ ahead of G.M.T.

Bangladesh (formerly East Pakistan) observed Bengal Time ($6^1/_2{}^h$ ahead of G.M.T.) for civil purposes and Pakistan Standard time, same as I.S.T. for Railway and Postal work etc. up to 30-9-51. From 1st October 1951 East Pakistan (Now Bangladesh) standard time is 30*m* more than I.S.T. and West Pakistan (now Pakistan) standard time is 30^m less than I.S.T.

PLACE	Latitude North		Longitude East		Local Time Correction: L.M.T. from Zonal Std. Time		Local Time Correction: L.M.T from I.S.T.		Corr. to *India* Sid. Time	
BANGLADESH (*Time Zone : +6h*)										
	°	′	°	′	*m*	*s*	*m*	*s*	*m*	*s*
Barisal	22	42	90	22	+1	28	+31	28	–0	05
Bogra	24	51	89	23	–2	28	+27	32	–0	05
Chandpur	23	14	90	38	+2	32	+32	32	–0	05
Chittagong	22	21	91	50	+7	20	+37	20	–0	06
Comilla	23	28	91	12	+4	48	+34	48	–0	06
Cox Bazar	21	27	92	00	+8	00	+38	00	–0	06
Dhaka	23	42	90	25	+1	40	+31	40	–0	05
Dinajpur	25	40	88	38	–5	28	+24	32	–0	04
Faridpur	23	36	89	51	–0	36	+29	24	–0	05
Gaibanda	25	22	89	33	–1	48	+28	12	–0	05
Goalundo	23	49	89	45	–1	00	+29	00	–0	05
Ishurdi	24	08	89	05	–3	40	+26	20	–0	04
Jessore	23	08	89	12	–3	12	+26	48	–0	04
Khulna	22	48	89	35	–1	40	+28	20	–0	05
Kushtia	23	55	89	07	–3	32	+26	28	–0	04
Mymensing	24	45	90	24	+1	36	+31	36	–0	05
Narayanganj	23	38	90	30	+2	00	+32	00	–0	05
Nator	24	25	89	02	–3	52	+26	08	–0	04
Netrakona	24	53	90	45	+3	00	+33	00	–0	05
Noakhali	22	48	91	06	+4	24	+34	24	–0	06
Pabna	24	01	89	16	–2	56	+27	04	–0	04
Parbatipur	25	40	88	53	–4	28	+25	32	–0	04
Rajshahi	24	23	88	35	–5	40	+24	20	–0	04
Rangpur	25	45	89	18	–2	48	+27	12	–0	04
Sanjahar	24	48	89	00	–4	00	+26	00	–0	04
Sirajganj	24	27	89	44	–1	04	+28	56	–0	05
Sylhet	24	55	91	52	+7	28	+37	28	–0	06
Tangail	24	13	89	55	–0	20	+29	40	–0	05

Cities in Bangladesh and Pakistan — *Contd.*

PLACE	Latitude North	Longitude East	Local Time Correction		Corr. to *India* Sid. Time
			L.M.T. from Zonal Std. Time	L.M.T from I.S.T.	
PAKISTAN (*Time Zone : +5h*)	° ′	° ′	*m s*	*m s*	*m s*
Bahawalpur	29 24	71 40	–13 20	–43 20	+0 07
Bannu	33 00	70 36	–17 36	–47 36	+0 08
Hyderabad	25 23	68 21	–26 36	–56 36	+0 09
Islamabad	33 42	73 10	–7 20	–37 20	+0 06
Karachi	24 51	67 01	–31 56	–61 56	+0 10
Lahore	31 35	74 18	–2 48	–32 48	+0 05
Multan	30 12	71 28	–14 08	–44 08	+0 07
Peshawar	34 01	71 34	–13 44	–43 44	+0 07
Quetta	30 12	67 02	–31 56	–61 56	+0 10
Rawalpindi	33 35	73 03	–7 48	–37 48	+0 06
Sukkur	27 43	68 53	–24 28	–54 28	+0 09

FOREIGN CITIES

The adopted Zonal Standard Times of the territories with reference to which the local time corrections for the cities and the reductions to I.S.T. have been given are thsoe as in current use. It is likely that before and during the war period some of these standard times were different, but it has not been possible to indicate here all such changes.

In many countries summer time is kept, *i.e.*, during the summer months the clocks are advanced usually by one hour. If the recorded time of the event is summer time, it should be converted into the normal standatrd time of the territory or zone by making necessary correction (generally *minus* 1hr.) before the reductions for local time and I.S.T. are applied.

(Countries observing Summer Time or Day Light Saving Time during the summer months are marked with asterisks.)

PLACE		Time Zone	Latitude	Longitude	L.M.T. from Zonal Standard Time	I.S.T. from Z.S.T.	Corr.to *Indian* Sid. Time
		h	° ′	° ′	*m s*	*h m*	*m s*
Accra	Ghana	+0	5 31N	0 15W	–1 00	+5 30	+0 54
Addis Ababa	Ethiopia	+3	9 02N	38 44E	–25 04	+2 30	+0 29
Aden	Yemen	+3	12 45N	45 04E	+0 16	+2 30	+0 25
Akyab	Burma	+6½	20 09N	92 55E	–18 20	–1 00	–0 07
Alexandria	Egypt*	+2	31 12N	29 53E	–0 28	+3 30	+0 35
Amsterdum	Nether.	+1	52 22N	4 53E	–40 28	+4 30	+0 51
Ankara	Turkey*	+2	39 57N	32 54E	+11 36	+3 30	+0 33

PLACE		Time Zone	Latitude		Longitude		L.M.T. from Zonal Standard Time		I.S.T. from Z.S.T.		Corr.to *Indian* Sid. Time	
		h	°	'	°	'	*m*	*s*	*h*	*m*	*m*	*s*
Athens	Greece	+2	37	54N	23	52E	−24	32	+3	30	+0	38
Auckland	N.Zeland	+12	36	52S	174	42E	−21	12	−6	30	−1	01
Baghdad	Iraq	+3	33	20N	44	27E	−2	12	+2	30	+0	25
Bangkok	Thailand	+7	13	44N	100	30E	−18	00	−1	30	−0	12
Beirut	Lebanon*	+2	33	50N	35	25E	+21	40	+3	30	+0	31
Belgrade	Yugoslavia	+1	44	50N	20	30E	+22	00	+4	30	+0	41
Berlin	Germany	+1	52	32N	13	25E	−6	20	+4	30	+0	45
Birmingham	England*	0	52	30N	1	50W	−7	20	+5	30	+0	55
Bonn	Germany	+1	50	44N	7	04E	−31	44	+4	30	+0	50
Boston	U.S.A*	−5	42	21N	71	04W	+15	44	+10	30	+1	41
Brasilia	Brazil	−3	16	13S	44	29W	+2	04	+8	30	+1	23
Brussels	Belgium	+1	50	52N	4	22E	−42	32	+4	30	+0	51
Bucharest	Romania	+2	44	25N	26	07E	−15	32	+3	30	+0	37
Budapest	Hungary	+1	47	29N	19	03E	+16	12	+4	30	+0	42
Buenos Aires	Argentina	−3	34	35S	58	20W	−53	20	+8	30	+1	32
Cairo	Egypt*	+2	30	08N	31	34E	+6	16	+3	30	+0	34
Canberra	Australia	+10	35	19S	149	00E	−4	00	−4	30	−0	44
Cape Town	S. Africa	+2	33	56S	18	29E	−46	04	+3	30	+0	42
Chicago	U.S.A.*	−6	41	53N	87	38W	+9	28	+11	30	+1	52
Copenhagen	Denmark	+1	55	40N	12	30E	−10	00	+4	30	+0	46
Damascus	Syria*	+2	33	30N	36	14E	+24	56	+3	30	+0	30
Dar-es-Salam	Tanzania	+3	6	50S	39	17E	−22	52	+2	30	+0	28
Djakarta	Indonesia	+7	6	16S	106	53E	+7	32	−1	30	−0	16
Dublin	Ireland	+1	53	20N	6	15W	−85	00	+4	30	+0	58
Edinburgh	Scotland	0	55	56N	3	11W	−12	44	+5	30	+0	56
Frankfurt	Germany	+1	50	06N	8	40E	−25	20	+4	30	+0	48
Geneva	Switz.	+1	46	12N	6	09E	−35	24	+4	30	+0	50
Glasgow	Scotland	0	55	52N	4	15W	−17	00	+5	30	+0	57
Greenwich	England	0	51	29N	0	00	0	00	+5	30	+0	54
Hanoi	Vietnam	+7	21	02N	105	52E	+3	28	−1	30	−0	15
Havana	Cuba*	−5	23	08N	82	22W	−29	28	+10	30	+1	48
Helsinki	Finland	+2	60	09N	24	57E	−20	12	+3	30	+0	38
Hongkong	Hongkong*	+8	22	18N	114	10E	−23	20	−2	30	−0	21
Honolulu	Hawaii Is.	−10	22	00N	156	00W	−24	00	+15	30	+2	37
Istanbul	Turkey*	+2	41	00N	29	00E	−4	00	+3	30	+0	35
Jerusalem	Israel	+2	31	46N	35	14E	+20	56	+3	30	+0	31
Khartoum	Sudan*	+2	15	35N	32	35E	+10	20	+3	30	+0	33
Kabul	Afghan.	+4½	34	33N	69	12E	+6	48	+1	00	+0	09
Kandahar	Afghan.	4½	31	32N	65	30E	−8	00	+1	00	+0	11
Kuala Lumpur	Malaysia	+7½	3	09N	101	43E	−43	08	−2	00	−0	13
Kuwait	Kuwait	+3	29	30N	47	45E	+11	00	+2	30	+0	23
Kwangchow	China	+8	23	06N	113	16E	−26	56	−2	30	−0	20
Lagos	Nigeria	+1	6	25N	3	27E	−46	12	+4	30	+0	52
Leipzig	Germany	+1	51	20N	12	23E	−10	28	+4	30	+0	46
Leeds	England*	0	53	50N	1	35W	+6	20	+5	30	+0	55
Leningrad	Russia	+3	59	57N	30	18E	−58	48	+2	30	+0	34
Lhasa	Tibet	+6	29	40N	91	07E	+4	28	−0	30	−0	06
Lima	Peru	−5	12	02S	77	02W	−8	08	+10	30	+1	45
Lisbon	Portugal	+1	38	43N	9	11W	−96	44	+4	30	+1	00
Liverpool	England*	0	53	25N	2	55W	−11	40	+5	30	+0	56
London	England*	0	51	32N	0	05W	−0	20	+5	30	+0	54
Los Angeles	U.S.A.*	−8	34	03N	118	17W	+6	52	+13	30	+2	12
Madrid	Spain	+1	40	25N	3	41W	−74	44	+4	30	+0	57

PLACE		Time Zone	Latitude		Longitude		L.M.T. from Zonal Standard Time		I.S.T. from Z.S.T.		Corr.to Indian Sid. Time	
		h	°	′	°		*m*	*s*	*h*	*m*	*m*	*s*
Manchester	England*	0	53	30N	2	15W	−9	00	+5	30	+0	56
Mandalay	Burma	+6½	22	00N	96	05E	−5	40	−1	00	−0	09
Manila	Philippin	+8	14	30N	121	30E	+6	00	−1	30	−0	16
Mauritius	Ind.Ocen.	+4	20	17S	57	33E	−9	48	−2	30	−0	26
Mecca	Sd. Arabia	+3	21	25N	39	54E	−20	24	+2	30	+0	28
Melbourne	Australia	+10	37	50S	144	59E	−20	04	−4	30	−0	41
Mexico City	Mexico	−6	19	26N	99	01W	−36	04	+11	30	+1	59
Milan	Italy*	+1	45	28N	9	11E	−23	16	+4	30	+0	48
Mombasa	Kenya	+3	4	00S	39	40E	−21	20	+2	30	+0	28
Montreal	Canada*	−5	45	30N	73	34W	+5	44	+10	30	+1	43
Moscow	Russia	+3	55	45N	37	34E	−29	44	+2	30	+0	30
Moulmein	Burma	+6½	16	30N	97	38E	+0	32	−1	00	−0	10
Nairobi	Kenya	+3	1	18S	36	52E	−32	32	+2	30	+0	30
Newcastle	England*	0	52	27N	9	04W	−36	16	+5	30	+1	00
New York	U.S.A.*	−5	40	43N	74	00W	+4	00	+10	30	+1	43
Osaka	Japan	+9	34	40N	135	30E	+2	00	−3	30	−0	35
Oslo	Norway*	+1	59	54N	10	45E	−17	00	+4	30	+0	47
Ottawa	Canda*	−5	45	24N	75	43W	−2	52	+10	30	+1	44
Paris	France	+1	48	50N	2	20E	−50	40	+4	30	+0	53
Pegu	Burma	+6½	17	20N	96	29E	−4	04	−1	00	−0	09
Peking	China	+8	39	55N	116	28E	−14	08	−2	30	−0	22
Perth	Australia	+8	32	00S	115	50E	−16	40	−2	30	−0	22
Philadelphia	U.S.A.*	−5	39	58N	75	17W	−1	08	+10	30	+1	44
Phnom Penh	Campuchia	+7	11	35N	104	57E	−0	12	−1	30	−0	15
Prague	Czeco.	+1	50	05N	14	24E	−2	24	+4	30	+0	45
Prome	Burma	+6½	18	47N	95	15E	−9	00	−1	00	−0	08
Quebec	Canda*	−5	46	48N	71	13W	+15	08	+10	30	+1	41
Rangoon	Burma	+6½	16	47N	96	10E	−5	20	−1	00	−0	09
Rio deJaneiro	Brazil	−3½	22	54S	43	12W	+7	12	+8	30	+1	23
Riyadh	Sd. Arabia	+3	24	39N	46	41E	+6	44	+2	30	+0	13
Rome	Italy*	+1	41	55N	12	27E	−10	12	+4	30	+0	46
Saigon	Vietnam	+8	10	49N	106	41E	−53	16	−2	30	−0	16
San Francisco	U.S.A.*	−8	37	48N	122	25W	−9	40	+13	30	+2	15
Seoul	S. Korea	+9	37	31N	127	06E	−31	36	−3	30	−0	29
Shanghai	China	+8	31	14N	121	28E	+5	52	−2	30	−0	26
Singapore	Singapore	+7½	1	21N	103	54E	−34	24	−2	00	−0	14
Sofia	Bulgaria	+2	42	41N	23	21E	−26	36	+3	30	+0	39
Stockholm	Sweden	+1	59	20N	18	00E	+12	00	+4	30	+0	42
Sydney	Australia	+10	33	52S	151	12E	+4	48	−4	30	−0	45
Taipei	Taiwan*	+8	23	30N	121	00E	+4	00	−2	30	−0	25
Taskent	Russia	+6	41	20N	69	18E	−82	48	−0	30	+0	09
Tehran	Iran	+3½	35	41N	51	26E	−4	16	+2	00	+0	20
Tokyo	Japan	+9	35	40N	139	33E	+18	12	−3	30	−0	37
Toronto	Canada*	−5	43	39N	79	23W	−17	32	+10	30	+1	46
Tripoli	Libya	+1	32	45N	13	15E	−7	00	+4	30	+0	46
Vienna	Austria	+1	48	12N	16	22E	+5	28	+4	30	+0	44
Volgograd	Russia	+4	48	44N	44	25E	−62	20	+1	30	+0	25
Warsaw	Poland*	+1	52	12N	21	00E	+24	00	+4	30	+0	40
Washington DC	U.S.A.*	−5	38	55N	77	04W	−8	16	+10	30	+1	45
Wellington	N.Zealand	+12	41	16S	174	47E	−20	52	−6	30	−1	01
Zurich	Switz.	+1	47	26N	8	22E	−26	32	+4	30	+0	49

N.B. Fig. in col(6)—Fig. in col.(5) = Excess of I.S.T. over L.M.T.

Period of Summer Time

British Summer Time (when clock time is 1 hour more than G.M.T.)
(Changing at 2 a.m. G.M.T.)

1936	Apr. 19 to Oct. 4	1951	Apr. 15 to Oct. 21	1966	Mar. 20 to Oct. 23
1937	Apr. 18 to Oct. 3	1952	Apr. 20 to Oct. 26	1967	Mar. 19 to Oct. 29
1938	Apr. 10 to Oct. 2	1953	Apr. 19 to Oct. 4	1968	Feb. 18 to Dec. 31
1939	Apr. 16 to Nov. 19	1954	Apr. 11 to Oct. 3	1969	Whole year.
1940	Feb. 25 to Dec. 31	1955	Apr. 17 to Oct. 2	1970	Whole year.
1941*	Whole year.	1956	Apr. 22 to Oct. 7	1971	till Oct. 31
1942*	Whole year	1957	Apr. 14 to Oct. 6	1972	Mar. 19 to Oct. 29
1943*	Whole year	1958	Apr. 20 to Oct. 5	1973	Mar. 18 to Oct. 28
1944*	Whole year.	1959	Apr. 19 to Oct. 4	1974	Mar. 17 to Oct. 27
1945*	Apr. 2 to Oct. 7	1960	Apr. 10 to Oct. 2	1975	Mar. 16 to Oct. 26
1946	Apr. 14 to Oct. 6	1961	Mar. 26 to Oct. 29	1976	Mar. 21 to Oct. 24
1947*	Mar. 16 to Nov. 2	1962	Mar. 25 to Oct. 28	1977	Mar. 20 to Oct. 28
1948	Mar. 14 to Oct. 31	1963	Mar. 31 to Oct. 27	1978	Mar. 19 to Oct. 29
1949	Apr. 3 to Oct. 30	1964	Mar. 22 to Oct. 25	1979	Mar. 18 to Oct. 28
1950	Apr. 16 to Oct. 22	1965	Mar. 21 to Oct. 24	1980	Mar. 16 to Oct. 26

Double Summer Time (when clock time is 2 hours more than G.M.T.)

1941	May 4 to Aug. 10	1944	Apr. 2 to Sept. 17
1942	Apr. 5 to Aug. 9	1945	Apr. 2 to July 15
1943	Apr. 4 to Aug. 15	1947	Apr. 13 to Aug. 10

From 1981 onwards British Summer Time (G.M.T. +1*h*) is observed from 1 a.m. of last Sunday in March to 1 a.m. of the day following the fourth Saturday in October.

1981	Mar. 29 to Oct. 25	1983	Mar. 27 to Oct. 23	1984	Mar. 25 to Oct. 28
1982	Mar. 28 to Oct. 24			1985	Mar. 31 to Oct. 27

In North America (U.S.A., Canada and Mexico) the following standard times are maintained.

	Normal standard Time	During Summer Seasons
Atalntic Time	— 4*h* AST	— 3*h* ADT
Eastern Time	— 5*h* EST	— 4*h* EDT
Central Time	— 6*h* CST	— 5*h* CDT
Mountain Time	— 7*h* MST	— 6*h* MDT
Pacific Time	— 8*h* PST	— 7*h* PDT

The cities of New York, Washington D.C. Philadelphia, Boston, Quebec, Toronto, Ottawa, Montreal etc. fall in the Eastern Time Zone, Indian Standard Time is $10^1/_2$ *hrs.* in advance of the normal standard time of this zone.

Summer Time or Day Light Saving Time is introduced from 2 a.m. of last Sunday in April and withdrawn from 2 a.m. of last Sunday in October, during which period clocks are advanced by one hour.

In Russia the standard time observed varies from +3*h* to + 13*h*.

Originally the European countries like Irish Republic, France, Belgium, Portugal, Spain, etc. observed G.M.T. as the standard time of the country. During the period of second world war, their clocks were advanced by one hour for purpose of Day Light Saving as was done in Great Britain. That system of time is still being continued in these countries although Britain has since resorted to G.M.T. except for Summer Time.

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